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# HEALTH AND DISEASE

## THEIR LAWS

WITH

## PLAIN PRACTICAL PRESCRIPTIONS FOR THE PEOPLE

BY

BENJAMIN RIDGE, M.D., F.R.C.S., &c. &c.

AUTHOR OF

"A SYSTEM OF GLOSSOLOGY, OR THE ADDITIONAL MEANS OF DIAGNOSIS OF DISEASE TO BE DERIVED FROM INDICATIONS AND APPEARANCES OF THE TONGUE," &c. &c. &c.

> "With respect again to Disease, so prolific a cause of suffering to man, the human constitution is merely a complicated, but regular process in Electro-chemistry."—VESTIGES OF CREATION, p. 376, 4th Ed.
>
> "As civilisation advances, reason acquires a greater ascendancy; the CAUSES of the evils are seen and avoided; the disease shrinks into comparatively narrow compass."—IBID. p. 380.

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NULLA SINE CAUSA NOTA.

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# PREFACE.

A GREAT change has come over modern minds; and those which will not obey the command to advance, are now left behind in the great struggle of life. Trade, the basis of the wealth of this great country, was the first in the race. Our fathers bought and sold and bargained in small shops, and, patiently plodding on, abhorred all show and ostentation. At the present day, on the other hand, the commonest vocation of life cannot be carried on without a certain parade. The meanest merchandise must be sold in palaces, with their attendant plate-glass, florid decorations, mirrors, chandeliers, carpeted and gilded chambers, and draperied walls and windows. Wholesale houses are now-of-days huge monopolies; and where once a return of 50,000*l.* and 60,000*l.* was deemed a first-rate order of things, the half million or million are scarcely wondered at now. Manufacturers are hence compelled to meet great demands; for large quantities, small profits, and quick returns, make the millionnaire. To do this, the mechanical and chemical sciences are called into requisition to assist, and well have they responded; for in answering that call, they themselves have become developed. The whole community now ride in the fast-going steam-carriages of monopolist companies, whose capitals are reckoned by hundreds of millions; and, not content with this, science has devised a plan whereby even our thoughts are conveyed through Europe, and will ere long be carried all over the world, as speedily as the lightning's flash. In fact, manufactures, trade, and commerce, foremost in the race, carry religion, science, laws, order, and civilisation, to all the families of man.

What a vast field is here for reflection! This great movement seems to draw everything after it. The ecclesiastical and legal professions sympathise with, and are affected by it; and even if they move not of their own accord, a momentum is imparted to them from without, which they cannot, and dare not resist. All species of property must hence be made more current to meet the wants of the ever changing owners and holders thereof. Even landed property will henceforth be made as negotiable as a transfer in the funds or a bank-note. The laws to enable every man to get his own are now in course of being simply rendered, and an improved criminal jurisprudence will lead ere long to yet easier transitions. What the public demands, the legislature must concede; else it stands in the way and becomes obstructive.

While men's minds have thus been excited to every action of reform,—strange to say, the dull routine of MEDICINE is the only branch of science that lags behind. It is a cumbrous load, resembling only itself, and is a mere heavy lumber, dragged along by its own slow-moving forces, apparently uninfluenced by the changes of the times. The public leaves it to itself, its usages, and its laws. They know nothing of its intricacies. It has no place in their minds, when they need it not,—and so they care not for it; though still they show great impatience of its yoke, when obliged to invoke its assistance, and submit with the utmost dissatisfaction to the rules it enjoins. They will not stop to hear prosy tales, as once they did, from former professors, in the days of gold-headed canes, buckles, and bag-wigs; and who can blame them? They have no time for the luxury of being ill; and hence it is, that he who promises the quickest cure is the article sought after. "Can't stop," is the reply; "better kill me at once than keep me out of the warehouse." The warehouse! Every one has his warehouse; for every man's occupation or profession, whatever it be, is his warehouse; and so every branch of society feels impatience at disease.

Thus is it, that every method which the human mind can devise for a quick remedy is brought forth to treat this hurrying, bustling, living mass. Hence has arisen a host of pretenders; the nostrum-monger opens shop against the legitimate trader in physic, the hydropathist opposes both, and the homœopathist all. A shilling is tossed down for a box of pills —no matter by whom or of what made—and they are swallowed in the railway-train in the course of business. A bath and a rubbing-down are taken at a hydropathic establishment, simultaneously with orders for goods; and men swallow globules for imaginary ailments, instead of going to the doctor to have the matter scientifically treated. Hence the doctor and his profession are quoted in the market at a discount. Why? Because he has not kept pace with the rest of the world—has not gone ahead or out of the beaten track, as all the rest have done, but sticks to his old saws, his old prejudices, and quotes as a respectable authority old Hippocrates, who lived three centuries and more before the Christian era;—before anatomy was properly studied,—before the wonders of modern chemistry had been developed,—before the circulation of the blood was discovered;—in short, before half a hundred things had been thought of, without which medicine could not now be practised at all. The practice of medicine, then, wants modernising,—wants to be thrown open and ventilated,—wants to have some fresh light thrown on it; because, it is at present behind the age, positively obstructive, and must be moved on. The public mind, it cannot be denied, has long viewed it with distrust, and on everything connected with medicine, is much divided in opinion. As I perfectly agree with the general sentiment on this topic, I need not, in this age of progress, offer any apology whatever for here submitting to the public my own ideas. Of one thing I am well assured, that their publication cannot make matters worse, or cause them to retrograde; nor is it impossible that they may make them better. A little originality and a few germs of fresh thought on the varied subjects treated, may lead other members of the profession to think,—may lead the great public itself to judge and reason more seriously, more rationally, and perhaps, also, somewhat more scientifically. Yet, who in his senses would write scientifically for the million? It is quite bad enough to do so for the few—those of the profession—who will not heed it or move on themselves, nor allow any one else to do so in their place.

I have endeavoured, therefore, in the following pages, to convey useful and philosophical information in plain, common-sense language, and, as far as possible, to avoid all technicalities;—in short, to convey some knowledge of the wonders of their own bodies, and that which concerns them most, to those who cannot be presumed able to dive deep into medical science. All persons and all families practise a little self-medication or surgery during their lives; and as there is really so much error in what they do, I have thought that, with a little instruction, they may act right as easily as wrong. They will here, then, have to see some of their old prejudices knocked down;—nevertheless, while giving them new rules, I have, at the same time, endeavoured to explain their philosophy. I feel justified, therefore, in recommending this work;—*First*, to those who stop at home, though surrounded by physicians, as they will here get good advice on many points, and still have the benefit of proper medication from their own professional friend. *Secondly,*—it will be useful to those who live where there are few doctors, and those few hard to be got at, or to others who live where there are none;—as, for instance, to the clergy, who—like the late Reverend Sydney Smith—are often called upon to administer "a gentle jog" to their poorer parishioners. *Thirdly,*—I address, myself to those, who have the command of ships carrying no surgeons among their living cargo, and also to emigrants and colonists, who will, in the emergencies and accidents of human life in a rude state of civilisation, find much good advice as to what they can do satisfactorily, both for their own benefit and that of their families and friends. *Lastly,*—my work may perchance not be without its uses to the profession itself, as forming an integral portion of the great Public; and they may, perhaps, find here a few new ideas, which they had not been taught at their Alma-mater, or learnt elsewhere in their study of medical literature. As one of their own body, and strongly opposed to every species of quackery or illegitimate practice, I can only say,—and I feel assured, too, many sensible practitioners will agree with me,—that they, as well as myself, have found the practice of medicine, at times, fail them. I have been driven, then, like themselves, to my own resources and observations, from the results of which I have endeavoured to do my best for the patient.

What I have advanced as new and original matter, has been elicited from much patient observation, and may be made available to the scientific. Indeed, I feel satisfied, that if the practice of medicine were freed from much of its absurd, dull routine and red-tapeism, and from the constant torturing of what are miscalled "medical facts," into every possible and impossible effect of some morbid derangement in the system—they know not what,—and if, instead of that, a few simple causes were broadly generalised upon, far more service would be rendered to the profession itself, to science, and to the public at large, than by the present uncertain and unphilosophical mode of procedure. The latter would soon place confidence, where alone it should be placed; and this step would, more than any other, confound all the illegitimate and irregular practitioners of medicine.

I have written, I trust, clearly and with precision, so as not to be misunderstood. As respects my observations and doctrines, I have asserted them boldly and undoubtingly, nor shall I flinch hereafter from proving them, if necessary. In conclusion, I earnestly recommend all who honour this work with their perusal, to study a little of themselves, and the laws which uphold their health or gradually produce disease; for in these matters all are alike interested.

BENJAMIN RIDGE.

21, Bruton-street,
Bond-street, 1858.

# INTRODUCTION.

A German adage declares, that, "All good things are three." A division into THREE classes simplifies arrangement; and, whenever this can be done, any subdivision following that rule is a further proof of its propriety.

If we take GENDER, as exemplified throughout Nature, we find three divisions,—masculine,—feminine,—neuter;—the last having a very extended range.

The comparison of anything in Nature seems to compel a three-fold division; and on arriving at man—the highest point in the scale of animal life, we compare everything regarding him by this simple rule, without perhaps being aware of its all-pervading influence. Again, man has made similar rules for himself without seeming to copy any natural ones; indeed, owing to his study of the sciences he acquires a greater distinctiveness, so that in human language grammarians follow Nature in the masculine, feminine, and neuter genders, as well as in the singular and plural numbers, or in the combination of both to form a third,—as in many cases and in most languages the same words express either. In arithmetic we have the Rule of Three. In the sciences, again, the chemist cannot work out his wonderful discoveries without observing this apparently all-pervading rule;—for he has his ACID, ALKALINE, and NEUTRAL agents,—known also under the title of *re-agents.* This three-fold arrangement, then, having such universal predominance,—it is scarcely to be wondered, that it should have so largely pervaded theology, poetry, philosophy, oratory, and science in general. Whatever, in short, may have induced men to associate this rule with most of their acquirements, it certainly tends to the working out of their best problems; nor can I think it accidental. As Nature, therefore, has herself pointed it out, adopted it in so many instances, I may haply escape censure for having made use of it myself.

In framing an hypothesis for health as a starting-point, with the view of establishing certain definite laws for a departure therefrom, I have used this general three-fold division, as respects disease, its treatment, medicaments, and diet,—as well also as in its diagnosis, and the distinctive secretions of the body.

In making rules easy for the memory to retain, then, I may lay down the following, as at least unobjectionable. As respects the substances of the body, in the first place, they admit of three distinct divisions into—

1. The *hard* substances, as bones, cartilage, &c.;—
2. The *soft* substances, as muscles, the viscera, &c.;—
3. The *fluids,*—as the blood, and other secretions, &c.;—

and these might be again subdivided. It will be sufficient, however, for our present purpose, to subdivide the fluids; for in these we find three unmistakeably distinct characters:—

A. Those secretions that are formed quickly and as speedily excreted, being detrimental if retained,—and which are ACID;—

B. Those which are secreted—to be used again in the system, such as the *salivary,* which are ALKALINE,—with the single exception of the gastric juice of the stomach, which is ACID.

C. The NEUTRAL secretions and fluids of the body, including those of the serous and albuminous kind, those used for lubrication, &c.

The laws of the diagnosis of disease admit likewise of a threefold division,—into—

1. The exciting cause,—
2. The proximate cause,—
3. The latent cause;—

all of which may be proved and verified by means of—

*a.* The tongue,—
*b.* The pulse,—
*c.* The history and general symptoms of the case.

The characters of disease, in like manner, have three divisions;—

1. Acid,
2. Alkaline,
3. Neutral,—

their subdivisions, again, being—

*a.* Organic, which are incurable,
*b.* Functional „ curable,
*c.* Nervous „ remediable.

FIRST,—THE ACID DISEASES (known medically as an acid diathesis) are of three degrees, ranging from simple indigestion to the highest amount of action short of inflammation, which is the next stage;—

1. The excess of acid above the predominance requisite for health, and which produces an infinitude of minor ailments.
2. A greater excess of acid than the preceding,—producing still higher actions in the system, as gout, rheumatism, &c.
3. A still greater excess or superabundance of acid, above the two preceding, with a total or general overloading

of the system in all its organs, producing congestive actions, and the highest functional disturbances short of fevers, inflammations, and organic-lesions.

SECONDLY,—THE ALKALINE DISEASES (treated here as the alkaline diathesis in contradistinction to the acid), include fevers of three distinct characters;—

*a.* The arterial;—
*b.* The venous;—
*c.* The capillary.

These, again, are subdivided into distinct and indistinct inflammations, attended with distinct or indistinct febrile action; and these also are arranged in three classes;—

α. Inflammations of mucous membranes;—
β. „ serous membranes, and fasciæ, or sheathings and divisions of muscles.
γ. „ muscular and other structures, including substances of organs themselves.

THIRDLY,—THE NEUTRAL DISEASES (or diathesis), include all the nervous disorders, or mixed classes of disease;—

i. Inflammations of single organs, not running into direct fevers, where alkaline actions prevail in some parts, acid in others.
ii. Febrile actions excited by irritating causes,—as wounds, strictures, stoppages, &c., in the presence of an acid diathesis.
iii. All nervous diseases and disorders, in which the acid and alkaline diathesis alternately prevail.

The LAWS AND DIVISIONS OF MEDICINE, or all those elements used as curative and neutralising agents in disease, again, resolve themselves into three distinct classes;—the acid,—the alkaline,—the neutral;—which are further divisible into—

*a.* Medicines to be administered internally;—
*b.* Medicaments to be applied externally;—
*c.* Miscellaneous remedial agents,—such as climatorial changes, mental influences, and mechanical appliances.

The LAWS OF DIET AND HYGIÈNE, once more, may be classed under three distinct divisions;—

1. The *ingesta*, that produce in the system, through their ultimate reduction by digestion, a great amount of acidity,—as, for instance, all boiled and salted meats, as well as direct acid diets;—
2. Those, which in their last actions of digestion produce less acidity than the former, or are in their actions on the system, when first taken, of a decidedly alkaline character, as roasted and broiled meats, &c.
3. The neutral elements of diet, which seem to have no influence in either way.

In conclusion,—the object of medicine has always been threefold;—

FIRST,—to neutralise all elements known to be in excess in the system, and thereby creating disease in the body, and ready to be acted on by any exciting causes;—to remove all obstructions, free the actions of organs when functionally disturbed, or when over-worked, to advise their rest, and, after a given time, to make them act harmoniously together,—so that by relieving Nature, before she herself exerts her own powers to do so, actual specific disease may be averted, which is always attended with danger.

SECONDLY,—its object is, to add such actual elements to the system that is disturbed by their deficiency, or such elementary matter, as will of itself cause their generation, and so sustain the balance of power and vitality.

THIRDLY,—it is intimately concerned with the proper regulation of hygiène, as respects both the administration of diet and the influence of climatorial changes on the system, whether bodily or mental.

All these matters are in the following pages very simply explained, and with a view to the better and clearer elimination of a code of rules for the guidance of those who have no time to pursue deeper studies, though able and willing to follow me in the perusal of the ensuing chapters. Such persons will trace design in all that relates to the practical application of means to an end,—not warring against, but acting in accordance with truth, and verifying the practice of medicine, wherever it is correct and has been found beneficial; and they will see, also, that I have supported and strengthened it by a well-based philosophy, without which there can be no true science,—a philosophy that brings thought, induction, and reason, to confirm its every allegation or purpose. In a word, I have taken a broad, general view of the whole system; and, this being the case, it is not impossible that good may come out of the whole.

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Health, as a primary and normal condition of the system, is admitted to be known only by its effects; and it is equally admitted that the laws of disease are but imperfectly understood. The causes of health, whatever they be, have never been defined, even by an arbitrary or artificial standard; nor has any attempt been made to point out the first departure from a presumed condition of health, as known by its effects. The first steps of disease are very simple, though by gradation they afterwards become most formidable maladies.

Health must evidently have certain fixed laws to govern it, even if those laws have escaped the reasoning of an inductive philosophy; for, as everything in Nature is governed by law, we cannot except health and disease. So extensive a subject as the *cause* of health and disease must necessarily depend upon many correlative sciences;—amongst which Chemistry and Natural Philosophy may be esteemed the bases. With the advances in these sciences an approach at least might be made towards an hypothesis or arbitrary standard of the cause, as respects both. Cannot the Laboratory support a chemico-vital doctrine? For instance, every secretion of the body has been analysed; and it is well known that many secretions of an alkaline character are made for the purpose of being again introduced by absorption into the system in a metamorphosed condition. Others, again, there are, which are essentially of a neutral character, possessing no active or direct chemical constituent, and simply used for the purpose of lubrication; whilst a third series of an acid character are first secreted and then thrown out as useless or excrementitious, and are, in fact, mere purifiers or purgers of structures necessary on the one hand, but if retained in excess, both hurtful and pernicious. Chemists, therefore, know the constituents of both secretions and excretions and lubricating fluids. What, then, is the balance of the predominant chemical constituents of these elements, as they stand in relation to each other in the system?

Again, every part of the body has been analysed; and results have been obtained of the chemical constituents of its more solid properties, such as hair, skin, nails, teeth, muscles, bones, cartilage, fasciæ, or external coverings of muscles, or the skin that divides one muscle from another and allows a free play of one over the other, membranes and glands of all denominations, brain, nerves, substances of organs, &c., and, in fact, all the solid parts of the body. How, then, does the balance stand with respect to the chemical constituents of these; and how much do their bases influence the condition of the body generally?

Again, the blood, as it is in the arteries, the veins, the capillaries, or connecting links between the two; the gastric juice or the secretion peculiar to the stomach, and the substance which is formed by that wonderful fluid in union with the aliment first taken, which is called *chyme*. What are the balancing powers here, on any chemical calculation formed on chemical bases? Then the substance peculiar to the secondary stages of digestion, when the chyme has passed out of the stomach and the mass has been acted upon by pure alkalis, a product arises which is called *chyle*. The mucus from the mucous membranes—the serum from the serous membranes—the thin serum again from the fasciæ, or coverings of muscles—the synovia, or secretion in the joints—the bile, or secretion of the liver, and the simple alteration of the blood as it passes in and out of the spleen. Then the external secretions of the body, which become at once excrementitious deposits as soon as formed, and are called perspiration,—differing in character as well as odour according to the part of the body in which it occurs. Then the fœcal matters of the bowels, and lastly, the urine. So far, then, as concerns the fluid elements of the body, whether secretions or excretions.

There are other elements, however, that materially influence the consideration of a balance of chemical predominance in the system, and these are the gases or imponderable substances. To sustain life, the lungs are constantly absorbing vast quantities of oxygen from the air, which undergoes immediate combustion, and is, consequently, a great source of internal heat; and the result of this, as far as the lungs are concerned, is that all the air that comes from them in the process of expiration is carbonic acid gas. The stomach, also, in its healthiest condition, evolves this gas, and to a much greater extent, when it is in an unhealthy state. Oxygen is also very largely absorbed with the food and drink; and it helps digestion by combustion also. The second stomach, again, evolves its gases, as also do the small intestines—all of an acrid or acid nature; yet it is in the large intestines more particularly (and this has been but little observed) that the most vitalising of the gases are secreted.

Let us ask, then, in what chemical relation all these elements stand to each other? This is a question that constantly attacks us, and cannot be too often asked.

A complete balance of equality does not seem to exist. Some predominant action of a particular character would appear to be a regulating agent, governed by some great natural law.

Clearly, if all the organs of the body were duly and equally engaged in the fulfilment of their respective duties, and undergoing a constant wear by giving out their fluids and gases to an extent wonderful to contemplate, they themselves must be constantly renewed, and hence under constant change. Thus, therefore, those more direct elements that we can isolate, and of whose chemical bases we have or can gain positive knowledge, are not to be alone considered; because, in chemical phenomena, many changes take place that disappear almost as soon as they are observed, though, while they exist, they still have important chemical duties to perform.

This occurs, also, in the laboratory; and hence some chemists have prematurely given to certain analysed and reducible constituents the name of elements, or simple bodies, which others have proved only to have had a temporary existence while the analysis was going on, and to have been simply the result of the properties educed by themselves from the matter of their own experiments. Neither can it be a matter of surprise that we know this, when we consider the immense amount of animal matter engaged in all these changes. Yet we have to compare the self-existent, or internally-constructed, materials of the body itself with the foreign matter taken into it; and if we only do this, we shall find a simple result, namely, that man is as much dependent on what he himself makes in the combustion, decomposition, and appropriation of his own organisms, as on what he takes for their constant renovation and support.

Self-dependence is, therefore, a great law in the animal economy. The lowest state of this in animal life is exemplified in the changes which take place in insects; as, for instance, in the grub and chrysalis, which exhibit many very interesting self-generating properties. To go a step higher in the scale, the hybernating animals, which live in a state of torpor for three or four months of the year, such as the marmotte, the dormouse, and some species of the bear tribe;—instinct points out to them the places and positions of rest, during these months of self-dependence; and if we may compare man with animals of mere instinct, we see the same principle frequently carried out by the Faquirs, or religious devotees of India, whose limited reason and cunning lead them to exist in a state of hybernation for weeks together, under certain conditions. The hybernating animals' existence, however, is a natural and instinctive one, maintained by certain regular laws, whilst on the other hand that of the Faquirs is the result of a low reasoning, though cunning faculty, exercised for specific purposes, and aided by practice.

There may occur, again, an accidental prolongation of life from involuntary starvation, either in man or animals; an effect resulting from an exclusion of oxygen, to the lowest limit capable of sustaining life without food. A fat pig buried under the débris of a fallen cliff at Dover was dug out alive at the end of some weeks, though reduced to a skeleton. The fact of its living depended on its getting only a sufficient quantity of air through the porous structures which enveloped it, yet enough to sustain a low respiration; while all self-supporting duties were carried on, and there had been little or no waste from the discharge of the excrementitious deposits. Had his head or snout been exposed, so that a free current of air could have been momentarily obtained, the necessary waste in the system consequent on this would have killed him in a few days. This, then, was accidental and providential. Absorption and conversion of self-generated vital agents in the system, capable of thus sustaining life, are here shown most forcibly; so that at the expense of natural structure life is supported. Now, the very opposite action to this may be traced in some persons who have naturally an excessive power of self-dependence, or self-generating animal vitality. This is exemplified by the peculiar formation and innate tendency which some persons show towards inordinate corpulence, or obesity, both in early and mature life; for the amount of food or aliment which such persons take does not at all account for this grossness of habit, inasmuch as many persons of thin, spare frame, frequently take twice or three times the amount of food, with less exercise, and yet carry no flesh. No amount of care, or abstemiousness in diet, or diligence in exercise, will prevent the rapid formation of animal substance in these peculiarly-formed obese persons. Day by day they increase in breadth and bulk. The outline of the face enlarges as well as the jowl and double chin. Wherever flesh can be formed, it is rapidly put on with its corresponding layer of fat. The abdomen gets protuberant, and even pendulous, and the thighs ponderous, which give to their movements the effect of a waddling gait. Indeed, I have known those who have had this peculiar tendency, this disease of excessive self-generation of animal matter, try every effort to subdue it in the outset, and yet, after all, finally sink into despair, and become apathetic as to consequences, until at length all the internal organs become so enlarged and enormously increased in capacity, as actually to require large supplies of food.

One of two evils, now, must soon follow. If they do not take an adequate quantity of aliment to keep the furnace of Nature in full employ, they get disease, because Nature cannot be always or entirely self-supporting, and some organ would soon become affected for the want of new ingesta or new materials; while, on the other hand, they take this diet (and they cannot help it, even to excess), leading inevitably, sooner or later, to apoplexy. Nevertheless, there are intermediate conditions of this state that are capable of being controlled; and there are others which cannot. Where it can be done, reason will overcome animal gratifications, and this can be accomplished by taking a negative diet, namely, a large proportion of non-nourishing aliment with a small per-centage of that which makes animal structure.

The chemical and vital laws of animal existence that result from the constant metamorphosis of structure, form the basis of animal self-dependence, the great moving powers of which are heat, aided by the powerful influence of all nervous actions.

Now, in fevers and inflammations, this is characteristically shown; in the former especially, which may be justly viewed as the very highest state of excessive self-dependence. It may be designated, indeed, as a fire or generating power in the system, whose force must be lessened by all possible means. Anything organic, anything added to the body, which under more favourable circumstances would support life, must in these cases be cautiously withheld, and every excess of self-generated vital power checked. Nay, yet further; not only are all nutritious substances to be forbidden, but even many substances given which in themselves tend to check nutrition. It has doubtless been the lot of many to observe, on how little a fever-patient may subsist for many days, or even two or three weeks. Why is this? Because the decomposition of the membranes and tissues, as well as the carbon of the blood, supply the fire requisite to keep the human engine at work.

Inflammations of internal structures, however, are governed by somewhat different laws to chronic fevers, and exhibit somewhat dissimilar effects; yet they equally well illustrate the case of excessive self-dependence. As for external inflammations, their mode of showing it is by the excess of growth in the parts where they occur. This fact I will endeavour to make more apparent by examining in detail the powers that influence and call forth from the various secreting organs these self-dependent actions. First then, of the digestive faculty; in taking solids the act of mastication excites the salivary glands of the mouth, cheeks, tongue, and upon the upper surface of the back part of the tongue, &c., all the glands, in short, that come into contact with the morsel about to be swallowed. Now take this first act. What proportion of weight does the morsel of food when first put into the mouth bear to the weight of it, just before it is swallowed? It will be found very considerably increased. Let us add, also, the amount of mucus from the mucous membranes during its passage into the stomach. The fresh meal so taken, and all the saliva mixed with it, form a purely alkaline mass; for all newly-formed saliva is, as all know, an alkaline fluid. When this gets into the stomach, however, the juices of that wonderful organ are, or ought to be, purely acid; and the more it is called upon to receive, the more this gastric acid juice is generated, which produces heat. In health, therefore, it serves the double purpose of a solvent or digesting fluid, and an antiseptic to prevent putrefaction.

In these combined actions, it neutralises the alkaline constituents of the saliva and the alkaline properties of the fresh food. Let the stomach and its powers be called whatever they may, we know that they have their peculiar duty of digestion and to convert everything into one homogeneous mass, which, when thus converted, is the peculiar creamy pulp called CHYME. This is composed, as you may imagine, of many and various chemical properties, mixed with all kinds of greasy, oily, and fatty matters. This first, half-digested mass, on leaving the stomach, enters a sort of alembic, receiver, or half-moon-shaped gut (the *duodenum*), that gut, which the least of all others is affected in fevers; and here it is acted on by an opposite element to the gastric acid juice, namely, THE BILE, which is an *alkaline* substance and neutralises all oily and fatty matters, reducing any excess of acid that the mass may contain. The bile, which is made in the liver, does not come pure into the system; for, did it so, it might be too caustic in its action: so, therefore, the secretion of a large salivary gland lying behind the stomach, called the *pancreas* (and known in edible animals as the sweetbread), in some degree lessens its acrid properties, before it enters upon its duties. Both secretions indeed, whether from the liver or pancreas, first mix in one common duct, and then proceed in union to perform one duty in this second act of digestion.

The chyme, after being thus altered or modified by alkaline agents, then assumes the name of CHYLE. This chyle contains the new properties of the new food taken, as well as a large amount of what it must be admitted has been made by the human or animal system itself. The chyle in its pure state as readily dissolves in a caustic alkali as in an acid; but if *excess* of acid is used, a fatty soapy substance is again set free, proving that the acid, as it were, reconverts it into a sort of chyme, or something like what it was, before being acted on by the alkaline bile of the liver. Chyle, however, we shall still call it; and it then passes through a very long, circuitous passage,—the small intestines, to wit; in which it becomes further mixed with a large amount of mucus secreted by the mucous membranes. This, however, be it observed, is chemically neutral in its character, secreted like other mucus for lubrication and the protection of surfaces, being, moreover, a powerful organic element playing a distinguished part in the enveloping of all fœcal matter. In the small intestines, where the chyle has now to pass, are situated numerous small mouths, the openings of the absorbent vessels, which seize with marvellous energy and speed all its nourishing elements. Hence the rapidity of the removal from a given substance of whatever is useful, and the hastening onwards of that which is useless. The anatomical name of these passages, called the small intestines, has been taken from the Latin (*jejunum*), meaning empty. The speedy separation of all that the body requires from this mass, and the rapidity with which the residue is passed onwards, as the basis of the effete matter of the system, mechanically renders this intestine an empty one;—its great length, and its many convolutions, turnings, and twistings, simply offering so many obstructions to the progress of its contents, and thus allowing time for the necessary absorption.

That which is absorbed is the new property destined to renovate the whole system; and you see how much of it has been made by the system itself. What was taken of foreign matter is not by any means all organic; nor is it in any way useful for building up the system; for it contains a large mass of perfectly non-nutritious matter; whereas, everything that the system has made itself, all its secretions, saliva, gastric acid juice, bile, and fresh saliva, are organic, and, consequently, of a vitalising character. This is what must be set against the non-vitalising agents of the new food. What keeps the stomach in health is the large amount of food it has to act upon; for, had it nothing else besides vitalising principles to support it, it would soon lose its power altogether. The stomach is so independent an organ in this respect, and its solvent juices are so copious and powerful, that it prefers discriminating for itself the required masses and solids on which it is to act. Unless quantity be given to the stomach, how are the large intestines to receive their natural supplies? Fœcal masses, in short, are as much the bases of health to the large intestines, as inorganic masses are to the stomach.

The system being essentially an elective one, and man an omnivorous feeder, variety and quantity are absolutely necessary. Many diseases are brought on, and many delicate stomachs made more so, by injudicious management in this respect. Some may say, that the stomach must not be too much filled; and, therefore, only such fluid or solid substances should be taken as it may be able to digest. Yet who is to judge of this? If this be done against all the natural laws of the stomach, and the requirements of the large intestines, these parts will get a correspondingly less quantity of fœcal matter, the consequence of which is, that the whole body soon wastes. Were a metaphor allowable, by way of illustration, I should say that the nourishing properties of the organic constituents of food and the metamorphoses of the animal structures in the body itself, *form the oil;* whilst the inorganic substances of the food are the mere *wick* of this great lamp of life. It is clear, too, that both must be present for the lamp to burn. It is of no use pouring in oil, if there be no wick. I can say, in fact, from long experience on this point, that not only has irreparable injury been done to the system, but death has occurred from not allowing the stomach its elective action, which it could have performed had quantity been duly given it, instead of that alone which man's wisdom imagined it should have received:—thus, the frailty of the latter caused the failure of the former. In short, recollect this axiom, THE STOMACH MUST BE FILLED.

Now, bear in mind the condition of the chyle and its amount of nourishing matter, as compared with the amount of effete or non-nourishing matter with which it is mixed; because I shall have to speak of it again, when noticing its further dilution by elements already in the system. In the mean time, I will draw your attention to the more solid or non-nutritious portions of the digested mass which is cast into the large intestines, and immediately becomes fœcal matter. This mass is the natural stuffing of the large intestines, is necessary to their integrity to keep them open as natural elastic tubes, and is also powerfully conducive to the organic laws of life; in short, little as such effete matter may be thought of, it yet has its duties in the great end of animal self-dependence and existence.

In the very character of the large intestines, again, there is much to marvel at. It may be supposed that what is apparently cast off as effete, and henceforth useless, should be got rid of as quickly as possible. Not so.

The effete matter is thus exclusively confined to this part, which becomes, as it were, the natural sink of the body; for the very position, shape, and construction of this great intestine show a design that its contents should be retained for a certain time. As fast, then, as any portion is sent to the head of this great receiver, it is at once shut off by valves from the rest of the intestines.

Situated as this part is towards the right groin, an ascending tube carries the effete mass upwards in the direction of the liver; a transverse tube then conveying it onwards, and a descending one giving it easy descent down the left side, where it terminates in a short straight tube. In order, too, that no nourishing matter shall be left unused, a few absorbents are placed along the whole line ready to take it up. Sulphur, it is well known, forms an elementary part of the human system; and to its presence in the shape of sulphuretted hydrogen is due the peculiar fœtor of the animal ordure. Here, then, important gaseous substances are concocted; so that even from the effete matter, animal organic substances, such as ammonia, nitrogen, sulphur, and their combinations, are derived; the two former being the most essential to the vitality of the animal system; so that, here, both chemical and mechanical properties and purposes are inscrutably combined, and appearances and constructure kept up.

In looking attentively at these phenomena, we find the vital powers, through their muscular and mechanical agencies, combining with the chemical actions,—the opposing actions of the acids on alkalis, and of alkalis on acids, aided by the more neutral agents acting as diluents, being all constantly in operation throughout the whole of this wonderful tract.

Thus, then, do the elements within the body and those sent from without combine to cause a constant combustion, transformation, union, absorption, and rejection, by which the body is restored and upheld;—secondly, by their combinations and combustions with the new material used; thirdly, too, by the heat produced through these constant and manifold changes, both chemical and vital:—so that, even without any change of temperature, the cold, hungry man will become satisfied and warmed by partaking of a generous meal.

To look at this vital system again, in another point of view, the heart sends its blood through all the arteries of the body; and this blood contains all the elements necessary for nourishing and supporting every part to which it goes, keeps building up all those portions which secrete the fluids to be used again, and gives restored power to such parts as are constantly under the influence of waste from physical and muscular exertions. Nay, even the very muscles and their coverings secrete and excrete their own fluids; the porosity of the whole body showing a natural tendency to exudation and radiation, from the centres to the surfaces.

At certain times, however, this tendency is reversed. The skin itself—the very largest organ—performs these secreting and excreting actions on its own account, in the form of perspiration, which is *acid*. These processes are exemplified largely in the case of our taking violent exercise; for the perspiration then educed does not come from the skin alone, but from the deeper-seated structures also; and being then rendered more fluid, it escapes through the porous structures of the solid parts. The kidneys also secrete an *acid* fluid, known as urine, which is stored in the bladder as an excretion, and got rid of as occasion dictates.

The arterial blood, while passing through the system in performance of its functions, is subject to its own specific elementary disturbances, as in fevers; but, when viewed as a healthful agent, after nourishing every part, it terminates its course in the capillaries or vessels that form the connecting links between the arteries and the veins. Here, too, a second change takes place; for the blood is not exactly of the same character in the capillaries and in the veins as in the arteries.

Were there no capillaries, the blood would flow direct from the arteries into the veins unaltered, and, no doubt, too quickly; but this is prevented by the mechanical obstruction of the capillaries, which maintains the balance between the two great sets of blood-vessels, and this in addition to their other duties, especially within organs unnecessary to mention here. When thus altered, the blood now enters the veins, which is here again subject to its own specific elementary disturbance.

I told you to bear in mind, how much the system depends on what it makes, as well as on what it retains in a fluid form within itself. Here, then, is another proof of this great fact; for all the blood that passes into the veins is only the residuum of what has been used for the support and renovation of the whole of the body. What, then, has the venous blood further to do? Why, it acts as a diluent to *the new* blood, which is formed from the food and the previous metamorphosed elements of the animal itself; for the chyle, as I have said, passes onwards, and that portion which is fitted for restoring the system mixes with the blood from the veins, when they both pass to the right side of the heart. By thus mixing, the newly-formed fluid gets its colouring matter and greater liquefaction. Yet this new compound is far from being in a fit state to become a nourishing agent. It is sent, therefore, into the lungs, where it gives out its carbon, or heat, and receives oxygen in exchange, through contact with the air in the lungs—oxygen being, as most persons know, the great property of life throughout all creation—and the blood is then what is called vitalised, passing out in this state from the lungs to the left side of the heart, whence it first started. Again, I say, what is the relative proportion of this mass to what has been taken into the system as new ingesta, as compared with that made by the animal, or mixed with what the animal had within itself? Surely I do not err in stating the large self-dependence of the animal himself?

There are, however, one or two great facts to be here noticed, in speaking of the residual blood carried back by the veins into the system for the above purpose. The arteries, for instance, supply the organic substance of the liver with its vital actions and powers, while the veins furnish a fluid, from which one only secretion is made, namely, the bile. The returning mass of residual blood, then, is thus deprived of certain further constituents of its vital contents, that were left unappropriated during its circulation throughout the abdominal viscera; for it is only that portion of the venous residual blood that passes through the liver for this purpose.

The bile, however, contains another property, quite distinct from its direct alkaline one, which is most essential to the health of all animals,—I mean its *bitter principle*, which is so important as to deserve our greatest consideration. Whence does it arise, and for what purpose? The spleen acts as a most useful receptacle or reservoir for the blood, supplying any deficiency that the stomach may experience, either in performing its regular duties, or when it is over-exerted, as in large meals, in which case it is with propriety considered to act as a reservoir. Now, it is generally held that this is the *sole* duty that the spleen has to perform. This, however, would seem quite incompatible with its size and position.

Nature, as a general rule, makes more than one use of every organ; and it is reasonable to suppose that the great quantity of blood passing through the spleen must have some important change effected in it, if only by metamorphosis, or transition, especially when we see that its residual blood goes into the great vein of the liver to meet the other residual blood from the veins of the abdominal viscera, and from which alone the bile is secreted. However slight the transformation this blood undergoes, it is sufficient for the purpose; and, indeed, a mighty and noble purpose it is, if I am right in maintaining that it is the spleen which supplies the bile with its bitter principles. Now, there is nothing, perhaps, more essential to the well-being of man than the existence of the bitter principle; for where it is deficient, or where the spleen is out of order, or ceases fully to perform its duties, he is liable to an excess of THIRST; while, on the other hand, if there be a due proportion of the bitter principle in the bile, and the spleen is in no manner functionally interfered with, he does not suffer so much from that cause. Hence you will find that those who suffer most from thirst, and in consequence, as I believe, of a deficiency of this bitter element in the system, are most liable to fevers and inflammations; whilst those who do not suffer from thirst are seldom subject to those maladies. In the former, the spleen is always more or less affected, and more so in fevers with excessive thirst than in fevers less characterised by thirst. In the latter, the spleen is not affected, but retains a healthy standard throughout. It appears, also, to be unaffected in disorders which are not attended with fever or much thirst; and this fact I have so constantly observed, that I conclude the absence of this bitter principle, naturally in the system, to be the first cause of thirst, and that it arises from a want of integrity in the spleen, and that where these and their combinations exist to any excess, fevers are the result.

Further, this thirst is best allayed by bitter infusions. This notion is well borne out by empirical treatment. In fact, viewing the subject philosophically, the bitter infusions supply the natural deficiency, and in actual fevers, attended with THIRST, are for that very reason specifically beneficial. In the human family, however, strange to say, far more is done to meet its wants from usage and habit than from any regard to philosophic principle. As far as regards my own countrymen and their habits (whatever may be the balancing elements and idiosyncrasies of foreigners), it will have been noticed that *bitter beer* and such like beverages form very important articles of consumption, wherever the English congregate, either at home or abroad. Accident and philosophy have here acted together in recommending a grateful beverage; but, looking at affections of the spleen, especially in those where inflammatory actions and fevers or thirst are concerned, I believe (though I assert this as a new idea) that by some yet inscrutable changes in the elements of the blood while passing in and out of it, it is the duty of THE SPLEEN TO SUPPLY THE SYSTEM THROUGH THE BILE WITH THE BITTER PRINCIPLE, ITS ABSENCE OR DEFICIENCY BEING THE TRUE CAUSE OF THIRST.

In considering the direct acid or alkaline secretions of the body, we find that the sources of acid in the system are not confined to fluid excretions; for an amount of gaseous matter is generated therein, which it would be difficult to estimate. At every respiration the free oxygen from the air is converted, as soon as it enters the lungs, into free carbonic acid gas; the nitrogen contained in the air, and of course inhaled with the oxygen, at the same time mixing with the carbonic acid, and escaping in the shape of a nitro-carbon.

Although the lungs inhale and exhale as much air as they can, they never become entirely empty; or else collapse would take place; neither has the individual the power, even if he felt so disposed, of getting rid of all the air in the lungs; because it is wholly prevented by the peculiar formation of the deeper seated air-vessels. A large amount of free carbonic acid gas, therefore, is constantly present in the lungs. When the mucous membrane of the air-tubes is in a healthy state, a proper standard of quantity is constantly retained therein; but when additional mucus is generated and retained in or on the surfaces of the air-tubes of the lungs, as well as in the stomach and intestines, the same laws will produce in all of them an unhealthy excess of carbonic acid gas. This is a fruitful source of congestion, more especially of the lungs; whereas, when the mucus is deficient along the air-tubes or other mucous membranes, they become subject to inflammatory action. In the latter case there is less carbonic acid in the lungs generally than there ought to be, which is an evil precisely the reverse of that caused by the congestive condition. Whatever carbon, or carbonic acid gas, exists in the system derived from other sources, it is derived from the combustion of the carbonised food taken therein, or from congestive states of the lining membranes, arising chiefly from the stomach. At times, however, it may be present anywhere, and is not induced by excess of heat. Nitrogen, also, prevails throughout the system as its prime moving agent, its principal place of generation being the large intestines; and there is no gas more difficult to hold than this. Excess of this element, however, produces excess of power and general bulk, while deficiency, on the other hand, induces wasting and debility.

Once more, the calculated prevailing quantity of gases in the blood amounts to about one-tenth of the whole mass. The gaseous elements, too, in the arteries and veins respectively, show their distinctive qualities. Thus, the quantities of the several gases are as follow—in fractions and per cent.—in the two sets of vessels:

| | | Per cent. | | Per cent. |
|---|---|---|---|---|
| Carbonic Acid | in the Arteries, | $\frac{1}{14}$ or 7.13 ; | in the Veins, | $\frac{1}{18}$ or 5.6 |
| Oxygen | ” | $\frac{1}{38}$ or 2.63 ; | ” | $\frac{1}{85}$ or 1.2 |
| Nitrogen | ” | $\frac{1}{72}$ or 1.4 ; | ” | $\frac{1}{100}$ or 1. |

It is evident, then, that the acid element is of all three the most vitalising. Nevertheless, as neither oxygen nor nitrogen exists in the system, unless in admixture with hydrogen, the hydrogen and oxygen are constantly attracted towards each other, for the purpose of forming the fluid element we are used to call *water;* while the nitrogen, though readily mixing with oxygen, always seeks to be free and separate from the rest, owing to its chemical unsociability, and flies off, therefore, in a gaseous state, at every convenient opportunity, with scarcely a moment's warning. It may, therefore, be considered as an element exclusively loving life, though only so long as the functions of the latter are harmoniously carried on; for as soon as that ceases to be the case, the nitrogen stealthily withdraws, and wholly disappears at death, which it most intensely abhors.

In that most dreaded congestive form of Lung-disease, for instance, which is familiarly known as *galloping consumption*, and in which the lungs are actually consumed or burnt out by carbon, the large intestines invariably cease to generate nitrogen—nay, more, even what they already possess of the latter gas, leaves; and it is for lack of this that the solid parts of the body lose their sustaining vitality, resolve themselves into water (oxygen and hydrogen), and at length evaporate. Now, at every such combination, away flies the nitrogen, and there seems to be a race in the system, when these four elements—carbon, hydrogen, oxygen, and nitrogen—cease to act in concert, and vie with each other which shall soonest do the work of destruction. Thus, where the body is in health, they all act in harmony; but they are all at variance both in consumption and Asiatic cholera. Nitrogen, nevertheless, is ever the first to desert, leaving the rest to follow according to their laws of escape. In short, these four gases act as friends when we are in health and prosperity, but as deadly foes during disease and on the eve of dissolution.

Taking, then, a review of all the chemical elementary fluids and gases of the body, we see that all the salivary secretions, as well as the bile and the blood, are alkaline, and that all the fresh *ingesta* taken into the system (barring the direct acids) may be considered alkaline also. On the other hand, we perceive a vast number of fluid secretions, used for lubricating as well as for diluting purposes, which may be considered as neutral agents in themselves, though still furnishing elements that act specifically, both on the true acid and true alkaline fluids. These, with all the salts in the blood and the secretions (which, in themselves, are combinations of acids and alkalis), are characterised by certain laws, and affinities, and disturbances, which remain sometimes neutral, and at others act as direct agents, according to the marvellous requirements of the system, causing it to become specifically elective for either base, whether acid or alkaline, one or the other being taken or left, according as Nature requires, for maintaining the true balance of a law of healthy vitality.

Lastly.—All the excrementitious fluids, such as the urine and perspiration, will be found to result from the metamorphosis of the chemical agents in the system—to be, in fact, so many acid excesses purged and got rid of, which, if retained, would injure the whole fabric. So, likewise, with respect to the gaseous elements of the body, especially the more acid ones generated in the lungs and large intestines, they also will be found to obey certain laws, which the body, when in health, has power to reject, if in excess, or to retain so much, and no more, of them than is requisite to sustain a certain integrity of purpose. They are thus kept, we may observe, through the constant supply of gastric juice, which is purely and distinctively acid, and in a normal healthy state of the body is always in excess, for the purpose of duly fulfilling the purposes of the vital economy.

These three great distinctive bases, or principles—the Acid, ALKALINE, and NEUTRAL—appear, indeed, so mutually dependent, so constantly interchanging relations, and used so electively by the system, all of them, in fact, so regularly performing their duties with a steady persistence of action, and always in a transition state, that I feel warranted in suggesting that there are certain balancing chemical properties that regulate the whole combined mass in the system, and keep them in constant obedience to a set of well-defined laws.

To me, indeed, it appears that, in a state of health, and as indispensable thereto, there must always be *a certain acid state predominant in the system.* I can come, therefore, to no other conclusion than to base an hypothesis on these facts, combined with others equally demonstrative of its truth, namely, those founded on Glossology—that THE CHEMICO-VITAL LAW OF THE CAUSE OF HEALTH CONSISTS IN A CONSTANT PREDOMINANCE OF ACID IN THE SYSTEM.

This great law, existing as it does to indicate and regulate the naturally healthy state of man, may be traced throughout all organic animal creation—in beasts, birds, fishes, reptiles, mollusca, crustacea, insects—nay, more or less, throughout the living vegetable kingdoms. I perfectly allow, indeed, that the ultimate element to which all marine vegetation is reduced by incineration is SODA, and that forming the residue of land-vegetation, POTASH—both alkalis—and also that fresh infusions made from the large majority of plants, or parts of plants, are alkaline. Nevertheless, their healthy life during growth results from the predominance of acid vital gases, the regeneration or revivification of which by seed is owing to the highly nitrogenised or acid state of their constituents. The main source of this great supply, however, through the world-wide extent of vegetable creation, is the elimination therefrom of carbonic acid gas, the rest being chiefly made up of the same gas expired by the animal as well as from the atmosphere itself, which, though seeming to possess purely neutral properties, still uniformly contains four-fifths of nitrogen—that is, a well-ascertained predominance of the most vitalising gas in creation, and, if not the prime mover, at all events the main supporter of every denomination and kind of organic life.

After all, the chemist's laboratory is only an humble imitation of that of Nature. As a proof of this, the analytical chemist's first duty, when anything be sent to him of an organic nature to examine, and he is not told in what direction he is to carry out his researches, is to ascertain its acid or alkaline action and reaction, and then its neutral properties. Both these he reduces by reagents, heat or liquefaction, in order to dispose of what concerns him not in his inquiry. By thus disengaging every simple constituent of no importance, he obtains the residuum he requires, and then acts on this again by acids, by alkalis, by neutral agents and reagents, by heat, by liquefaction, by substances that produce scents or colours, reducing all, in the end, to their just relative proportions, and thus obtaining a tolerably true estimate of the properties inherent to the object of his investigations. The laboratory, in short, like the human body, is a system of the chemical actions and reactions of acids and alkalis on each other, causing substances to oppose and unite, in imitation, as it were, of animal vitality, through heat or electric actions; and we may here observe that, just as in Nature, so the chemist's acids predominate over all other substances employed.

Before tracing the laws of disease, I must, of course, first allude to those peculiar conditions of health which are incidental to every individual, and are known under the general term — IDIOSYNCRASY. The predominance of acid in the system, in such proportions as to produce health, varies in different individuals, being sometimes more, sometimes less; and on the great variety of these intermediate conditions depends the aptitude which persons have to contract certain classes of diseases—a circumstance, however, which, so far from being inconsistent with the laws I am about to propound, rather tends to show that an idiosyncrasy is, as often as otherwise, demonstrative of a departure from health, as here set forth; and this is owing to insidious conditions of the chemico-vital laws, for disease has just as fixed a law of progression, in such a state of the body, as it has when health reaches its highest standard, and suffers departure therefrom in obedience to laws now to be explained.

As health has hitherto only been considered with reference to its effects, and as I have laid down a simple though arbitrary standard of its true cause, I shall speak of the laws of disease by gradation, and trace the departure of health from these first principles. First of all, however, I shall endeavour to show the error of supposing that any one can be in perfect health to-day, and the very next day have a fever or other considerable disorder. The very laws of Nature and Providence, as well as all true philosophy, are outraged by such views. That any one may be in an *apparently* good state of health, *apparently* free from disease, and yet suddenly become the subject of some violent natural attack, and fall into real and severe disease within a very few hours, is very probable; but, on the other hand, it is equally false in doctrine and reasoning, that no gradation of cause had existed, or did exist. Nature is all law and harmony. Is disease, then, to be excluded as an exception, simply because we have not hitherto understood it? Here, then, the many forms of idiosyncrasy must be carefully considered. Some persons will be found to possess the fewest possible elements of health—a condition similar to that just laid down—and yet be apparently as well as usual, though, in fact, on the very eve of fevers or inflammations.

Viewing health in the light just stated, in the case of those who enjoy it in its full and proper sense, what are those first chemical conditions that constitute or indicate the first departures therefrom? I answer, confidently, that they arise not from the sudden lessening of the predominant acids in the system, but rather from their increase, owing to which we become subject to indigestions, nausea and flatulence, chills, aches at the back of the head, heaviness, drowsiness, low spirits, general lassitude, and disinclination to follow the ordinary pursuits of life. The tongue, too, instead of retaining its healthy, pale rose-leaf appearance, with the papillæ indistinct, and the pile on it only tinging the surface, becomes, as the acid is more and more in excess, more furred, with increased length of pile, and more strongly marked papillæ. These indications may not at first, perhaps, be much noticed, because a meal supplies *fresh alkali* to the system, and thus again reduces the body for a while to its natural standard. This cleansing of the tongue, indeed, after every meal, is one of the strongest proofs of Nature's instinctive desire to bring back to its normal balance whatever superfluity of acid may be inconsistent with true bodily health. See, once more, what occurs during a state of hunger. The fasting stomach always shows a temporary foulness of the tongue—and why? Because the stomach is waiting for those things that will neutralise its gastric juices, the fact meanwhile being, that the breath has a slight taint of impurity. This very circumstance is recorded by Shakspeare, a most vigilant observer of all natural phenomena, in a dialogue in the "Two Gentlemen of Verona:"

> SPEED. Item, She is not to be kissed *fasting*, in respect of her breath.
> LAUNCE. Well, that fault may be mended with a breakfast. Read on.

Now, we will grant that little evils may go on for some time, and exist without causing the patient more inconvenience than has been above mentioned, appearing, indeed, so trivial to many as to require no attention, and to these, therefore, offering no warning. Here, however, be well assured, is the first step in a departure from health. But what happens next? Why, proportionately as the acid superfluity increases in the system, so also increase all these minor evils. Then follow in succession sneezing, or slight cold, rheumatic symptoms, a sick headache, susceptibility to draughts on sudden changes of temperature, a slight costiveness or departure from the usual regularity of the bowels, increased furriness of the tongue, that is no longer able to recover itself as before after the full meal, and lastly, heavy, dreamy sleep; all symptoms tending to show that the system has lost somewhat of its elasticity.

Again: the constitutions of the very same persons may not always be in the same condition, though apparently in perfect health. Thus, for instance, a strong man shall be able one day to stand on a river's bank fishing during many hours' heavy rain, and feel no inconvenience; yet, the very next week, he may get a tremendous cold while only talking to a friend for five minutes at the corner of a street. On the day that he fished his standard of health was perfect; while on that when he caught cold several steps of departure from that standard had already been taken, though only to be known by the effects. Even under these conditions, however, a little attention to the system, promoting perspiration by early retiring to rest and a little dieting, will soon set all to rights again, even without medicine, for as yet no illness of a decided character has set in.

Let us now, however, carry the case a step further. A marked superabundance of acid has now ensued, and all the smaller ailments previously mentioned have become aggravated, attended also by irregularity in the action of the kidneys. The urine now varies from its usual colour as well as quantity, and carries off an excess of acid from the system; for urea, the base of this secretion, is an acid. Next ensues rheumatism, from excess of the acids tincturing the neutral secretions between the muscles and the solids of the body. Rheumatic gout is a still further step, and gout itself follows as a climax of evils in this part of the body. Thus, then, you see that all the petty maladies to which we are subject—and their name is legion—follow as consequences of a first departure from the law of health, and uniformly result from a *plus* state, or superfluity of acid, as compared with the amount requisite for a perfect condition of health.

This excess, or superfluity, of acids it is which aggravates all incipient maladies, and produces that large class of diseases that come under the denomination of an "Acid Diathesis," a well-known and happy term of medical art, denoting an acid state of the individual system. Under these circumstances especially is it, that Nature's actions are clearly seen; for *Disease is Nature's effort to cure.* At these stages, then, arise eruptive diseases with their attendant fevers, such as chicken-pox, small-pox, measles, and the rest; or else we find quinseys, apoplexies, paralyses, &c., supervening, each and all denoting, according to the individual idiosyncrasy, or habit, the very highest pinnacle that the Acid Diathesis can attain in that particular subject. Now, all these conditions require altering and correcting through the alkaline agency of medicine, or even by blood-letting in case of fulness, as well as, on the other hand, by the support afforded by alkaline diet, such as fresh-cooked meats, fish, fresh vegetables, farinaceous foods, &c.* This excessive acid action, too, rapidly increases, and must have attained considerable height before eruptive disease can take place. Thus, then, while we see, on the one hand, the simple natural actions restoring a balance of health, we find Nature using severer measures on the other, and actually making specific disease an effort to cure. Just as, from some almost imperceptible cause, horses take fright in a team, so by some occult agency will the excess of acids suddenly fly off or out of the system too quickly, and so the balance becomes lost, thus upsetting the standard of health.

Nature in her sudden and violent efforts to regain an equilibrium will even remove the predominant acids necessary to a state of health, and by these means develop the various forms of inflammatory actions, or fevers. What is now the state of the body? If the Medical Profession have by usage and tacit assent allowed the term, "Acid Diathesis," surely they may allow me to state what is most strictly true, that in these cases the body has an ALKALINE DIATHESIS; for in these disorders their own rules and dogmas, their own empiricism, dictate the free use of *acids* and anodynes; whilst in the Acid Diathesis, on the other hand, they give *alkalis;* both of which practices are perfectly right, the true philosophical reason in either case being, that such treatment restores the lost balance of power in either position. In short, alkalis correct the first state, restoring the system to a natural standard; while, in the second state, characterised by the well-known pains and symptoms of the inflammatory condition, the use of acids brings them under control, and leads to their discontinuance. Hitherto, however, no philosophy has regulated these standards of empirical truth. The ordinary practice pursued has been a mere routine; and too often has it happened that, for lack of philosophy on the one hand, and proper discrimination on the other, either remedy may be pursued too far, or the one given instead of the other, to the increase of disease, or bringing it into existence where it had none before.

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* See chapter ii., on the Practical Application of Diet and Medicine, p. 35.

The first departure from a state of health has its origin in the stomach; for the first irregularities occur there, and, when allowed to continue, upset all its machinery. The next evil in succession occurs in the secondary parts, or organs of digestion; for it is owing to a long-continued persistence of the stomach in sending excess of acid along with the chyle, that the liver and pancreas, or sweetbread, are led to secrete excess of their alkalis in order to neutralise it. Hence, as long as the one can counterbalance the other, things go on pretty well. Herein Nature ever strives to do her utmost, and so long as her power remains, actual specific disease is kept off or controlled. But what follows, let us inquire, if the organs be overworked in this way? The popular, but erroneous, notion is, that the liver is most at fault, and thence arises the prejudice in favour of those most pernicious and detestable medicines—the *mercurials*, and those still hurtful, though somewhat less mischievous—the *aperients*. Hence, all the primary causes are passed over, the attention being solely confined to the secondary and tertiary; whereas, were the hints offered by a correct Glossology duly attended to, in connexion with the other points of medical diagnosis, and the simple administration of alkalis first adhered to, with the view of reducing the primary causes of disease, the liver, being thus allowed to rest from its lately overtaxed powers, would soon return with vigour to its duty, unaffected by needless and hurtful stimulants.

The fact, however, is, that by all the profession, from the highest to the lowest, the liver is considered the most offending organ of the body; and from them to the highest and lowest of society, throughout all orders, ranks, and stations, the idea has been universally communicated, that the poor liver is the great *causa mali*, and most sadly at fault. Everybody, from infancy to age, is supposed to have a tendency to be what is called BILIOUS, and the majority of our population to be naturally afflicted with a *sluggish liver*, or some other ailment of that organ. In fact, the great mass of the English public seem to recognise but one great cause of disease—that is, from the liver; and but two great forms of medicine—the mercurials and aperients! Half a century ago every one was nervous; but for the last one or two generations everybody has been *bilious.* All, in short, look upon this as a sort of axiom, or admitted fact; and I verily believe that, were they to be told that aught else were the matter, they would incredulously shake their heads, as if they thought you knew nothing of what you were saying, or they themselves did not understand you. Once tell them, however, that their livers are out of order, and that they are *bilious,* and it seems true as Holy Writ that you understand their case: their satisfaction is immense, and they feel a pride in talking over the tale of their symptoms.

Now, one word to all such! The liver is, I grant, the largest gland in the body; but yet it is not more useful in the great combination and economy of the system than any other. It has its duties, so have all the other organs; it has its laws, and so have other organs. It has its relations and juxtapositions also, in the same manner as a piece of the internal machinery, with all the other organs. Can it then be philosophically inferred that the great Divine Architect of the Universe would have placed any given organ in the body so unwisely that it should have a nature, or properties, or laws such as to constitute it, to the exclusion of all the rest, the most important organ in the animal economy, and not only that, but further, that it should always be diseased, or the cause of disease in the bodily frame of that wondrous being—*man?* I cannot and will not believe it. Reason, judgment, philosophy, and common sense alike repudiate this dogma; and we should at once disentangle ourselves from this great popular delusion.

To enter, however, into a more minute consideration of the progressive laws of disease, we must begin at the stomach, and trace its onward stages through the first and second processes of digestion, and then through the whole system. Every organ may be more or less overloaded and oppressed, or in what may be called a congested state, when they all find more or less difficulty in performing their respective and peculiar functions. This condition requires correcting with alkaline medicines, proper diet, and, in case the lungs be affected, with stimulating expectorants. Sharp, bracing air is necessary; everything, in short, that shall neutralise the extreme acid condition, encourage the chemical actions to greater exertion, and promote a general movement throughout the whole system.

If Art will thus relieve all the organs alike, it is well; if not, then Nature makes her choice of the locality to fix a specific disease. Every one's system has its peculiar peccant part—some organ more delicate than another; and whatever it be, that becomes affected by some more or less inflammatory action. The moment this occurs, all other organs seem, as by a miracle, to surrender at discretion, and recover their healthful, normal condition, leaving the chosen seat of the disease to remove the onus from all the rest. In one person the lungs, in another the stomach, in a third the brain, in a fourth the liver, in a fifth the kidneys, and so on, may be the chosen seat of evil. Wherever, in fact, one organ is weaker than another, or has been the seat of disease at a previous time, *there* disease will go again. In some persons, again, all the elements of the blood itself will be so disturbed as to induce fever. Of course, then, each of these cases must be treated according to its character. Where, I would ask, can we see greater wisdom than in this? Disease, let me once more remind the reader, is Nature's great effort to cure—to rid herself, in fact, of oppressing elements adverse to her vital integrity; and, for this purpose, disease is concentrated in, or drawn to, some given or favourite locality, according to the idiosyncrasy of the patient. Yet, mark; when once this concentration has taken place, then all the other parts or organs, being now free to act, instantly combine their efforts to expel the disease from the peccant part. It was a favourite observation of the great John Hunter, and he laid it down as a leading doctrine in practice, that "no two diseases of any magnitude can exist in the system at the same time;" and what I have above stated constitutes the explanation of that great fact, as well as of the yet more important one—the "Vis medicatrix Naturæ," or power of Nature to cure.

As disease progresses in the lungs, congestive action generally produces pleurisies. The terminal extremities of the bronchial tubes being blocked up, the air is first pent up, and then forced through the external membrane, when, of course, immediate inflammation of that membrane ensues. Where pleurisy, however, does not occur, Nature will again relieve the system in her own marvellous way. She may, perchance, relieve the air-tubes too quickly, and having commenced this action, cannot stop herself; so that not only is the superabundance of phlegm or mucus removed, but the protecting covering as well, and inflammation is the result. Here, then, is a simple explanation of a fact; and it shows the frequent danger of calling all lung or bronchial coughs, "bronchitis." There is as great difference between *bronchial congestion* and *bronchitis* as there is between congestion and inflammation of the brain; for, in fact, the congestion of any organ whatever is contradistinguished from its inflammatory action. These distinctions, as well as the organic seats of disease, the tongue most truly points out. For instance, looking down the centre, which is apportioned to the lungs—if that part be *furred* and there be cough, the malady is of a congestive character, and the bronchial tubes are loaded with phlegm and mucus; in which case alkaline remedies with stimulating expectorants are those most proper. The cough may be temporarily increased by the liquefaction of the phlegm and the efforts to bring it away; but it is by expectoration that the main evil is removed, and the enemy routed from the field. On the other hand, should the tongue be *red* down the centre, this indicates an inflammatory condition of the bronchial tubes—that is, bronchitis. This, in short, is the very opposite of the previous state, and points out the use of linctuses, or the acids combined with anodynes, or even opiates, which are the true means to heal the inflammation and allay the cough, and the two great ends most desirable to be attained.

Now, if these remedies be reversed, see what evil must be the result; the arrest of an action that should be promoted, and the promotion of an action that should be arrested. This, however, is—I very much regret to say—a frequent and fruitful source of error. No diagnosis is here comparable to the condition and appearance of the tongue, which, as will have been seen, at once points out the great distinguishing difference between *bronchial congestion* and *bronchitis*, as well as the modes of treating each. The cough in the one relieves the sufferer—the cough in the other oppresses him. The feelings and symptoms of the one are entirely different from those of the other. The act of eating often relieves the one, because, as I have before shown, all the fresh food taken is alkaline. Most of the congestive actions, wherever they reside, require good and generous diet. As a general rule, therefore, in these cases, *never starve a congested mucous membrane.* Now, on the other hand, the act of eating in the inflammatory stage is always attended with pain and a sense of pressure on the chest—a peculiar feeling, just as though the food would not descend lower than to a position opposite the bifurcation of the windpipe prior to its entrance into the lungs. Under such circumstances, there is, of course, need for great abstemiousness, because the system itself furnishes an excess of vital agency from inflammatory action.

Again, with regard to congestions of the brain, as contradistinguished from inflammatory actions of that organ and its coverings,—the edges of the tongue, mapped out for the seat of this organ, show in each case an equally characteristic difference. Where there is congestive action, these edges will be pale, furred, or serrated; where the action is inflammatory, on the contrary, clean and glary red. In the one case, the alkaline forms of medicine are imperatively called for; in the other, the acids and anodynes. The condition, also, of the other parts of the tongue will clearly show this. In the congestive actions, the portion of the tongue appropriated to the stomach and digestive apparatus will be found furred, that fur being often of a slimy character. There will be the accompaniment, also, of pain at the back of the head. If the head be hot, and there be pain across the forehead, the large intestines will be costive. Now, all these symptoms and evils will disappear on the administration of very simple alkaline remedies. If aperients, however, be given before these, the evils will only be aggravated. As respects, again, the inflammatory actions of the Brain,—the tongue, even if furred, having red glary edges, will exhibit a dryness of its fur or coating, and the bowels will be irritable, not confined or costive. How truly, then, are the uses of the acid and anodyne remedies pointed out by Glossology! In fact, you need no other guide nor monitor but the tongue to indicate the disease or suggest the proper remedies; for your whole end and object is to restore a balance of power in the chemico-vital agencies of the system. You may, indeed, relieve—in some cases, cure—by certain rules laid down by usage, experience, and empiricism; but this is merely acting in the dark if such treatment have no foundation in philosophy. Surely, then, you are making a step in advance, if you be armed with an hypothesis or theory respecting the cause and law of health; of the first departures from that state and the first gradations of disease; or of the general laws of disease. Nay, I will go further, and say that, taking the laws that I have here laid down, and combining them with glossological principles, error cannot exist either in diagnosis or the treatment of disease.

In the condition of the blood, the vital fluid itself, as evidenced in fevers, in the distinctive forms of that host of skin-diseases, whose treatment is highly demonstrative, the alkalis in all their varieties have been found by experience and empiricism to be in many cases highly beneficial, while in some others acids have been deemed the wisest and surest remedies. But why let such practices depend solely on usage, when the application of the doctrine can be reduced to a scientific standard? If proof were wanting for the truth of these observations, I would say: Look at the condition of the sailor who is attacked with scurvy from the protracted use of salted meats, which remove from the system all the predominant acids that it so much requires for maintaining its standard of health. It is thus reduced to what may be justly termed an *Alkaline Diathesis*—that is, to the state for which empiricism has most wisely prescribed lime-juice and fresh vegetables. Again, during the war in the Peninsula, the Duke of Wellington, when his troops were served with only salt provisions twice a week, had corresponding rations of rice to counteract their effects or excessive use, and by so doing he kept up the balance of power in the soldier's system. He did not act, it is true, on any philosophy as to the cause of health, nor on any hypothesis similar to that here inculcated, but simply on the known effects of salted provisions, and the previously known experience as to the means of preventing or curing them. Here was shown a commander's care and thought; but compare this with the state of the troops so recently in the Crimea, where insufficient clothing, salt meats, hard biscuit, overwork, and scarcely any of the proper diets, such as rice, fresh vegetables, fresh bread or meat, were served out to counteract the effects of the former. What was the consequence? Why, they died at a fluctuating average in the regiments, according to their duties, from twenty-five to seventy per cent., while the enemy claimed from the effect of all his murderous missiles not more than five per cent.—scarcely a tenth of the entire deaths! This was, indeed, a black page in our country's history; and it shows great want of foresight and general absence of knowledge, or even thought, invention, or induction; for even when every necessary lay within reach, they were denied to the men, because it was nobody's business to furnish them!

With such historical testimonies to the truth of my observations, I have no hesitation in saying again, that all fresh foods, of whatever description, barring the direct acids, are *alkaline*. Even salted meats act as such to a limited extent; though, when persisted in too long, they chemically overcome the predominance of acid necessary to a healthy state. In short, the fresh meats and vegetables keep the system in a proper balance, while the salted meats destroy that balance and bring the body into a condition in which it can least resist the inroads of those direfully prostrating diseases, such as cholera, dysentery, scurvy, scorbutic affections, fevers, intestinal inflammations, &c., which end in mortification, collapse, and death!

Even empiricism, then, in the absence of any philosophy, points out the use of acids and anodynes as remedies, which, while supplying the deficiencies of the system, are further aided by the use of fresh meat and vegetables; for the stomach very quickly does its part, and nobly, too, by its secretion of gastric acid juice. It will be seen, also, that even fresh vegetables and farinaceous diet alone will of themselves restore a balance of power, though all these are alkaline in their character. This may seem an anomaly, but it is not; for they do so by exciting the actions and secretions of the body, and in the production of this effect the GASTRIC ACID JUICE (a free muriatic acid) is the true creative agent, thus furnishing another proof of the great self-dependence of every animal, as well as of the truth of my hypothesis on the Law of Health.

In the application of remedial agents in skin diseases, let this great fact be well noted—that in all diseases of the skin, as well as in the case of wounds or diseases affecting the *upper extremities*, the application of alkalis, alteratives, and medicines especially qualified to purify the blood, is here indicated, few or no *aperients* being in any case required; whereas in all diseases affecting the *lower extremities*, whether skin eruptions or wounds, aperients are mostly, and often exclusively, necessary.

You will find this rule absolute, and dependent on one great natural law. If we look at these principles fairly and simply, we shall find them borne out, as respects the external remedies applied to wounds or inflammatory actions, on empirical principles. To foul ulcers the dilute nitric acid is applied, and the lunar-caustic, or nitrate of silver, to extraneous growths known under the name of *proud flesh.* The acid gargles are applied to soreness or malignant ulcerations of the throat, on the well-known principle that the acids act as antiseptic and deodorising agents. The gastric juice of the carnivorous birds, such as the vulture, acts in a similar manner. One of these foul birds, for instance, will consume the rankest carrion, which, ere it be fully digested, will be rendered perfectly sweet; and so powerful is this gastric solvent, that it will digest the largest masses of the strongest bones. Goulard's lotion, or the prepared acetate of lead, sulphate of copper, or blue-stone, the oxide and sulphate of zinc, the muriatic and sulphuric acids,—all these are applied to *inflammatory actions externally* in various stages, aided at times by the opiates and anodynes. Usage dictates their employment, and it is found to be generally correct. The alkalis, on the other hand, are never used under any of these circumstances; and even the ointments, or oleaginous applications, though neutral agents, soon undergo a change and become rancid, producing acid reactions.

Imagine not, however, that Nature acts by contraries, or is changeable in her laws. No; it is by reliance on her immutability alone, that man can deduce laws from practice, basing them on scientific and philosophical principles. Let me once more, then, impress on you the fact that *there is gradation in disease*, and that, at every step, a new law is educed. The term, *Congestive,* as given to diseases, must be understood always to indicate their origin and cause—namely, a plus state or superabundance of acid in the system over the amount required by Nature for fulfilling the chemico-vital law of health. Such cases require alkalis and stimulating remedies, with generous diet and support. Inflammatory diseases, on the other hand, and certain fevers—especially those consequent on lesion, or disease of the arteries—as well as mucous and serous inflammations, where the vessels may more properly be termed *engorged* than *congested*, require the use of their opposites,—that is, acids, anodynes, and opiates, with low living, for the purpose of starving the enemy out of his fortress. The two classes of diseases are distinct. In many neutral diseases, where a certain amount of congestive and inflammatory action may exist together in combination, the use of one or the other class of remedies alternately, in order to retain and keep up the great balance of power, is perfectly allowable.

I have elsewhere spoken of the few actual remedies, in comparison with the vast number supplied by the chemists, that are really direct curative agents or correctives of that excessive activity in the system which causes a vast variety of diseases, all governed by the same laws. A blind empiricism has, in many instances, pointed this out, and it has been followed; but, unfortunately, it has furnished us with no general or comprehensive rules for our direction or guidance, so that alkalis or acids have been administered almost indifferently, without any rule based on true medical philosophy.

To conclude, all diseases, and their medicines and diets, may be comprehended under three great classes:—*Acid, alkaline, and neutral diseases; acid, alkaline, and neutral medicines; acid, alkaline, and neutral diets.* Briefly stated, therefore, the whole doctrine of the laws and treatment of disease resolves itself into the following simple facts, thus tabularly arranged:

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| A. Diseases produced by an Acid Diathesis of the system, and all diseases arising therefrom, where the tongue is white or furred, and that fur is moist and of any colour, | require | Alkaline and stimulating medicines, Alkaline diet, and all those Ingesta, which in their ultimate reduction produce an Alkaline reaction. |
| B. All fevers and inflammations that may be considered direct alkaline diseases, where the tongue is red, or too clean, or dry, or if furred, that fur dry and of any colour, | require | Acid, anodyne and opiate medicines exclusively; acid diet, and such things as in their ultimate reduction produce the more Acid reactions. |
| C. All neutral diseases, or those which in some cases show a direct inflammation of one organ, and direct congestion of others, or, as in many organic diseases and certain states of the system, when they are each indistinctly developed, the tongue being at one time furred, and at another clean, red or dry, pale or flabby, or clean at one part and furred at another, in such parts as are indicated by Glossology, | require | The Neutral treatment, by the direct Acid, or direct Alkaline medicines and Anodynes or Opiates, with very frequently a change, in order to keep the system at a proper balance, accompanied by corresponding diet according to circumstances. |

The Laws of Health, thus viewed and understood, and the laws of the gradual departure from it, as here set forth, produce by gradation certain classes of diseases, so that, step by step, consecutively, the highest condition of which Nature in its chemico-vital state is susceptible, reaches that point, where one great family of disease stops and another begins :—then, where the second great family of disease is seen to be governed by opposite actions, reaches its highest state, recovers, or else closes the scene by death, according as the balance can be restored or not to the first great standard. All this shows a wisdom and a law hitherto not only not understood, but till now undefined.

## CHAPTER II.

## THE PRACTICAL APPLICATION OF DIET AND MEDICINE.

General considerations—The pleasures of the senses—Moderation in diet recommended—Follies of dieticians—The System to be repaired according to its waste—True philosophy of dieting—Details on the characteristics of the leading elementary articles of food, and their application—Acid and alkaline foods distinguished; examples of effects—Boiled meat puddings and baked pies, when good, or the reverse—Medicines generally considered—Alkaline, acid, and neutral remedies, with their application—Classification of Neutral salts—Tinctures and Extracts—The Alkaloids and their use by Homœopathists; wine, beer, and spirits; their adulterations and medical uses—The drunkard's thirst explained—Excessive use of effervescing beverages condemned—The philosophy of using medicines, whether acid, alkaline, or neutral—Empiricism in their use condemned—Details as to the use of each in specified cases, both congestive and inflammatory—Opium and its alkaloids; with their uses, as indicated by the tongue—Gargles and tinctures; their use and abuse—Neutral diseases and their treatment—Mercurials condemned; their fearful effects on the system—Concluding remarks.

Proper diet and medicine, under certain conditions of the body evidencing a departure from the Laws of Health, form a large subject of inquiry. Their application in all cases, and in the varied phases of disease, trifling or not, should be regulated on broad principles, so as to restore the lost equilibrium of the system; nor should either of them be continued beyond the point of remedial agency. Their simple actions seem to be to conduct a train of causes into a right channel; and, when this has been accomplished, the system itself is so wise and elastic that it continues, by its own natural powers, to keep up the standard of health.

Nature loves order better than disorder—harmony better than discord—health better than sickness. She is so wise, too, that she invariably assists art, when properly directed, evincing an unmistakable attachment to proper principles, but shows dislike, by an increase of disease, for that which evidently adds thereto instead of correcting it. In his healthy state, man, like all other animals, must eat to live, inasmuch as the fulfilment of this act constitutes one of his greatest pleasures. In short, seeing, hearing, smelling, and touching, seem quite subordinate to the sense of taste. The pleasures of any one of the former may be extended to any degree, but can be exercised only at given times; whereas the sense of taste is forced on all mankind, more directly and appreciably at least two or three times a day, or oftener, even in the absence of one or all the other senses.

Old philosophers were often wont to indulge in comparisons, and moot the question: Which was the greatest evil, a good appetite and nothing to eat, or no appetite and all the luxuries of an epicurean banquet? It had its advocates on both sides. But that is not our present question. "Dum vivimus, vivamus"—"While we live, let us live,"—has been deemed a purely epicurean motto. Not so, however; it has a peculiar and strictly Christian significance. The more prudently and virtuously we live, the better and happier shall we be; when we act the reverse of this, we become morally and physically ill.

Considering, then, the mere necessity of eating, I think we may all treat this in a very simple fashion, and fearlessly take, within certain bounds, what is nice and relishing, appetising and nourishing, correcting and supporting. The French, the grand modern *gastronomes* of the world, have instituted two very distinctive words—the *gourmand* and the *gourmet*. Now, the former of these cares not for the quality of his food, as long as he gets the quantity, while the gourmet, on the other hand, considers the element of quality almost exclusively, abjuring that of quantity. The proverb says, "Enough is as good as a feast." Now, I am inclined to think that it is better; for enough implies a wholesome sufficiency, while a feast, on the contrary, means an excess; for, were persons always to be feasting, there would be more or less a waste of substance, and often a waste of health, from over-indulgence or excess.

Moderately indulged in, nevertheless, an occasional feast, or taking a little more than is necessary, is, in my opinion, not injurious. Nature has provided for it, and, while doing so, has looked out for it, sought it, and even courted it. Why should we gainsay her wisdom? The liver secretes bile for all present necessities; but there is a reservoir for excess, the gall-bladder, and this does not yield any of its contents, unless the stomach is now and then over-indulged, when the fulness of that organ presses against the gall-bladder, forcing it to supply what Nature requires. For my part, I am strongly of opinion that the contents of this reservoir should be renewed occasionally:—*ergo*, accept your friend's invitation to dinner, especially if he keeps a good table, because taste has to be gratified, and a rational combination of the gourmet and the gourmand by no means implies sensuality. Besides, how could you otherwise get rid of your old gall and get new? Even the pious Hannah Moore was of this opinion, and, if only in this matter, I consider her a sensible woman.

The stomach, moreover, is provided with a reservoir for excess of duty, by having a large supply of blood from the spleen; for unless a little activity were exerted by this organ beyond the dull daily routine that is enjoined by its positive necessities, natural provisions would be ignored. Besides all this, again, unless the system were sometimes to get a *kick* or *fillip* to make it move a little faster, it would get into a sadly slow state; whereas this gentle hint to all the powers gives rise to a fresh source of elements throughout the whole condition of the blood, and prevents a man from becoming misanthropic.

In opposition to the above, let me introduce the follies of a class called *Dieticians*—persons who impose on themselves the task of living by rule on a certain diet, in certain quantities, at given times, thinking thereby to prolong their lives. Their misapprehensions of, and outrages on the laws of Nature, often lead them to an early tomb. Indeed, I never knew one of them to be a healthy man. The rules and reasonings by which they profess to be guided are wholly false. To-day, such an one may have undergone but little fatigue or wear of his system, he eats and drinks by the quantity and quality he has prescribed for himself. To-morrow, he may have taken more exercise, and requires something more to supply the waste; yet he eats and drinks by weight and measure as he did yesterday. Where is philosophy here? where even common sense? Let me give this person a few hints. The best and safest course he can pursue is, to *repair according to his waste.* To use a homely expression, "If he takes more out of the meal-tub than he puts in, he soon gets to the bottom." Extra exertions require extra support, for wear and tear are always going on. Man is an omnivorous animal, and should be able, when in health, to take at discretion everything that is fit to be eaten or drunk. Moreover, the greater the variety, the better. Why not? His system is suited to receive and appropriate it; while, on the other hand, a rigid adherence to any one class of diet, and regularity in taking it, does not prevent immunity from disease any more than variety of diet and irregularity in taking it causes it, though I may observe that excess in either is equally bad.

The powers of the human body are greater, and the laws of its organs and functions more self-supporting, than in any other animal in creation. Man can stand over-feeding and excesses better—hunger, thirst, and other privations longer—and undergo with less injury the many vicissitudes of temperature, heat, cold, or damp; and he can do with less sleep on occasions, and for longer periods together, than any other animal. Seeing, then, that Nature has amply provided for all man's excesses, both voluntary and involuntary, as well in cold, hunger, and fatigue, as in eating, and that disease is really not a sequence or result of any irregularities; seeing, also, that these views are borne out by experience "in flood and field," as respects what man imposes on himself or what is imposed on him by others, I am now to view the action of diet and medicine in certain states of the body, when a departure from health has taken place; and I shall do so on the hypothesis I have already laid down.

Superfluities of acid in the system may in many cases be corrected by diet alone, others by diet and exercise combined; while others require, besides these, a proper course of medicine to effect the same end, because food and aliment of every description have their own laws and modes of action, and as these are capable of being somewhat separately considered, may be divided into three general classes—ACID, ALKALINE, and NEUTRAL—corresponding with the three great classes of diseases. I shall now proceed to show that there are varied characteristics in all elementary articles of food, according to the mode in which they are cooked, so that, in their last act of digestion, they leave, or cause, or tend to increase, or otherwise exert, an acid, an alkaline, or a neutral agency.

FIRST, then, let me speak of all those aliments which have an alkaline tendency, not only in their first act from being properly digested, but in their last, as influencing the properties of the chyme. Such are all fresh-cooked meats—whether baked, broiled, or roasted—whether mutton, beef, pork, or lamb; all roasted or broiled game, or poultry, or small birds, of whatever description; all fresh-boiled green vegetables, as well as potatoes; all fried or broiled fish; all brown gravies, such as beef-tea, gravy and ox-tail soups; rump-steak, beef, or other meat puddings; light suet puddings and farinaceous puddings generally; rice, tapioca, arrowroot, sago, and macaroni, *when made without much milk*, or *with a small proportion of eggs.* The same rule applies to slops and drinks, whether arrowroot, sago, barley-water, &c., *where milk is not introduced;* and so likewise to all fresh infusions, such as tea and coffee, with just sufficient milk to correct their roughness.

All these above-mentioned things are of such character, that in their digestion they leave behind them no direct acid action, but, on the contrary, act as alkalines. If I have not mentioned fruit or fruit-puddings, as belonging to this class of diet, it is to give them a special notice of themselves. All well-ripened fruits, such as apples and pears, plums, peaches and nectarines, grapes, strawberries, raspberries, gooseberries, &c., may be deemed sweet enough to be eaten without sugar; but when they are to be used in puddings, tarts, or pies, it must not be forgotten that, as they are used before becoming ripe, sugar is more or less required, with the addition even of milk or cream, to correct the malic or fruit acid contained therein. Now, all milk or cream contains a lactic acid; and therefore the effect of adding either to fresh fruit puddings is, that the lactic acid of the one destroys the malic acid of the other, besides lessening the acid always present in the saccharine fermentation caused by the heat of the stomach, when sweets, such as sugar, are taken. Milk or cream, therefore, used with fresh fruit puddings, &c., is good for the above purpose; and many who have been accustomed to use them may have noticed the curd thus formed, which clearly shows that a change has taken place, and that without such addition, they would have tasted sharp or tart, but with it have tasted soft and wholly free from acid. Thus then, while either acid would have been hurtful in certain conditions, they are rendered inert, and consequently wholesome and alkaline. Whey may be taken for the same reason.

The direct opposite of the alkaline foods are those alimentary substances, which in their ultimate reduction by digestion leave the greatest amount of acid in the system; such as all *boiled* meats, both fresh and salted, whether mutton, beef, pork, lamb, veal, ham, tongues, &c.; all stewed meats, haricots, made gravies, white soups, mutton broth, chicken or veal broth, especially where care has not been taken to remove all fatty particles; meat pies; all *boiled* poultry or fish; milk and eggs; all puddings, whether rich plum puddings, or puddings highly spiced, pies and other pastry; also sago, tapioca, bread, rice or other such-like puddings made with milk or eggs; also jellies made with wine or punch, blancmanges, whips, creams, custards, &c., as well as all greasy things; all raw vegetables, salads, pickles, and shell-fish. As regards the difference here mentioned, as to the separate classification of meat-puddings and pies, it is well known that the former will in general agree better with the stomach than the latter; and for this simple reason, that the fat in puddings, that are boiled, makes *stearine,* a substance resembling liquid suet, lard, or butter; while the fat in pies, that are baked, makes *elaïne,* an oily fluid that floats about the stomach without being acted on by the gastric juice, and gives an uncomfortable sensation, until it passes out and becomes neutralised by the alkaline properties of the bile.

When the nature and actions of all these articles of food and diet, so opposite in character and results, are practically investigated on broad general principles, and their use or disuse made manifest according to the condition or disease of the patient, they tend greatly, accordingly as they are well or wrongly used, to the successful or unsuccessful treatment of disease.

I am now to speak of the characters of medicines. There is no medicine whatever, that can have any effect on matter or influence its chemico-vital laws, without being either of an *alkaline*, *acid*, or *neutral* character. Whereas all diets may be supposed to act on the system sometimes indirectly, and often directly, medicines, on the other hand, of a specific and distinct character act *solely* as direct agents. Soda, potash, magnesia, lime, chalk, and their carbonates, form the most important bases of the ALKALINE remedies. All fresh infusions, too, have an alkaline base, and may, according to circumstances, be combined with soda, potash, &c., to render them more so. Infusions, also, that are made from the various barks, herbs, roots, seeds, and flowers,—as calumba, chamomile, cardamoms, gentian, dried orange and lemon-peel, sarsaparilla, dandelion, liquorice-root, &c.,—any of these, in conjunction with the direct alkaline diet, will neutralise acidities.

The opposite classes of medicines to those last mentioned are the direct ACID medicines, such as the acetic, benzoic, citric, gallic, hydrocyanic or prussic, muriatic or hydrochloric, nitric and sulphuric acids. Many, very many more are known to the experimental chemist; but those above mentioned are the most ordinary acids used in medicine. The oxalic and phosphoric acids are but seldom employed.

The intermediate or NEUTRAL medicinal agents may be divided into two classes: those that have chemical bases, and those which cannot be said to possess any chemical character at all. Under the first-named head are classed the various salts compounded of an acid and an alkali, and which form some of the most valuable and useful remedies in the pharmacopœia. Some of these are in every-day use. Common salt, or muriate of soda, for instance, is one of the most beneficial agents to man and animals throughout the mineral kingdom, one to which man owes more for the welfare of both his mental and bodily health than he is fully aware of. It is the chief chemical element of the ocean, and is found, therefore, in greater abundance than any other all over the world. So necessary, indeed, does a kind Providence consider it, that it is found not only in sea-water, but in a solid state, bedded in seams, strata, and rocks, far inland, and often in the most out-of-the-way localities, whither animals travel many miles to get what is called a "salt lick." Nitrate of potash, carbonate of ammonia, and other salts besides, are similarly used in every-day life.

The neutral salts—those, namely, that are the combination of acid and alkaline elements—form a very large class; as, for instance, all the unions of acetic and other acids with an alkaline base, take their names according to the chemical combinations, such as—

ACETATES of copper, iron, lead, magnesia, morphia, potass, zinc, &c.
CITRATES of ammonia, iron, morphia, potass, &c.
CHLORIDES or MURIATES of ammonia, iron, lime, mercury (calomel), morphia, soda (common salt), &c.
NITRATES of potass, soda, mercury, silver, &c.
PHOSPHATES of lime, magnesia, soda, &c.
SULPHATES of copper, iron, magnesia (Epsom-salts), morphia, quinine, soda, zinc, &c.
TARTRATES of potass, potass and soda (Rochelle-salts), &c.

To which may be added the prefixes, *sub-*, *super-*, *bi-*, *tris-*, *per-*, placed before nitrates, sulphates, &c., of any preparation, to denote the chemical proportions of the acids to their alkaline bases. Lastly, there are the preparations of ether, as nitric or sulphuric ether, distilled vinegar, ammonia, and all fluid preparations having acid and alkaline bases.

The second class of the neutral preparations—those that have scarcely any chemical character at all—comprise all the TINCTURES, such as calumba, gentian, ginger, henbane, orange, rhubarb, &c.; the EXTRACTS, as colocynth, dandelion, henbane, opium, sarsaparilla, &c.; the GUMS, as Acacia, or Arabic, camphor, gamboge, opium, tragacanth, &c.; the POWDERS, as jalap, ipecacuanha, rhubarb, scammony, &c., mostly used as aperients, and the warm aromatic powders, as cinnamon, ginger, &c. All these are occasionally of the greatest service in stimulating, soothing, and purging, as well as in producing emetic, tonic, and carminative actions.

Lastly, there are the ALKALOID PREPARATIONS, or acting principles of alkaline medicines, now so much used by the homœopathists, who, if they wish to realise their principles, must adopt my philosophy of disease, and correct the superfluous acids of the body, while their stern regulations as to diet contribute to promote the same end, and the free air and exercise enjoined promotes the fluid excretions of the body, and prevents the accumulations of acids, by their free radiation through the skin. Thus, they employ numerous ALKALOIDS, such as aconita, arnica, baryta, belladonna, bryonia, chamomilla, china, cinchona, conia, dulcamara, jalapa, kina, nux-vomica or strychnia (lately so notorious in cases of poisoning), pulsatilla, sepia, silica, silicia, spongia, thuya, &c.

As I have before observed, medicines must be classified analogously to the diseases they are intended to cure—namely, into acid, alkaline, and neutral; and we must draw our philosophy of disease from its treatment. We have here, indeed, a very fair line of argument. Indeed, taking the whole round of the pharmacopœia, it is impossible to give any medicine, except in one of these three forms—namely, the direct acid, the direct alkaline, or the neutral preparations. The two former speak for themselves, because they must be as direct in their actions as in their character. With respect to the neutral medicines, it will be seen that I have divided them into two classes, and for this reason, that we must never lose sight of the fact before mentioned, that the system itself is composed of numerous chemico-vital elements that are always in a state of transmigration and change; and this rapidity of conversion is absolutely necessary, being productive also of a thousand other elementary substances, with all their undetermined and unknown elements, that cause electric, galvanic, magnetic, and other actions, with the view of keeping up the positive and negative currents of that wonderful electric telegraph of our bodies, the nervous system.

The first forms of the neutral preparations, or the salts, when taken into the body, are received and used by it *electively*—in that way by which alone our reason convinces us they must act, and on the hypothesis of the law of health that I have laid down; so that where there is excess or superfluity of acid, they take the alkaline portion, and in the opposite case, where there is a deficiency of the acid so indispensable for health, they elect the acid, in order to effect, if possible, that condition. This shows with what care any of these medicines should be administered, and how necessary it is accurately to know the general condition of the body, in order to determine whether their use should be discontinued or not, according to the disease under treatment.

The non-chemical neutral medicines, on the other hand, are those which enter the system, and harmonise with their fellows therein, or else simply excite actions of organs. Under this head I have reserved a few words for the beverages we take, such as wine, spirits, and beer, of every sort and description. These not being chemical in their constituents, add to the system a fluid, a bitter, a tonic, a saccharine, or a stimulant action, as the case may be; for, though not actually in themselves media of support, they yet cause support in an extraordinary way. They hasten all the changes of the various elements in the body, as well as impart increased functional power to the organs themselves, and thus assist our inherent power of self-dependence. Their uses are precisely the same in diet, as the tinctures—which are of an alcoholic character—are in medicine, when the system is depressed. When bitter in character, and combined, as we often use them, with syrup, patients can frequently take these medicines to sustain them, when they are quite unable to stand the use of alcoholic drinks, such as wine, spirits, or beer.

There is great difference, moreover, in the character of the various alcoholic and malt-and-hop beverages. Thus, for instance, I have found that all the light wines—such as the Rhenish white wines—though apparently sharp to the palate, are by no means acid, when of good or first-rate quality; and the same remark applies to the old dry sherries, Madeira, good Marsala, &c. The red wines, on the other hand, require great discrimination in their use. Old dry port and good claret are preferable to young port or claret, for this reason—that the former are free from saccharine elements, and, consequently, do not produce acidities in the stomach, while young or new port wine is very heavy, ferments in the stomach, and is, besides, too astringent. It is surprising what filthy stuff is often drunk under the denomination of port and sherry, both of which are, in nine cases out of ten, only factitious, or what are called *made-up wines*, and consequently very impure. Now, one can scarcely tell which of the two acts the worst, or which produces most acidities or crudities; but, if there be any difference, it is on the part of the port, as the ingredients for giving it the requisite colour, flavour, and astringency, are more hurtful than those used in making up the sherries.

With regard to spirits, and the more concentrated alcoholic drinks, they are useful—most useful—in many cases where the powers are to be supported; and good brandy is as fine a medicine as can be taken. If taken occasionally, then, it will do no injury; but habitually fuddling the system with brandy produces such excessive wear of the organs, by over-stimulating their functions, that life is greatly shortened. With respect to the habitual use of rum or whisky, the organic structures most affected by them are the mucous membranes, whereas gin acts more on the exhalants and kidneys, and thus more quickly carries off the excess of acids produced by its use. There is one affection in particular, from which spirit drinkers greatly suffer;—and that is *thirst*, which is the effect of the spirit neutralising and carrying off the natural bitter element of the body. It is this, indeed, which leads to the peculiar unquenchable *spark* in the drunkard's throat, which, the more it is dulled by fresh supplies, is the more induced by the reaction to burst forth into a continual flame. Although no person can take in proportion as much spirit as beer, nevertheless, the effect of excesses in malt liquors produces the same result—namely, the drunkard's thirst.

With respect to beer drinking, it is so purely a Saxon beverage, that I question if any other be so good for the Anglo-Saxon constitution. This truly national drink is made in many forms, varieties, and degrees of strength, so as to suit all sorts of constitutions. The light bitter beers or ales of modern manufacture are a most beneficial introduction, and, if taken only in moderation, are the most wholesome and serviceable we possess; for they supply a beautiful tonic to the system, and are far less inebriating than the other varieties. The stronger kinds should not be taken so freely. As for the sweet ales, and the various kinds of porter, stout, and beer, coming under the denomination of treble, quadruple, or quintuple X. (XXX, XXXX, XXXXX), or however otherwise marked by the brewer, they are only to be indulged in sparingly; for, used in excess, they become quite as injurious as spirits.

The advice I have been in the habit of giving for years respecting the use of all the stronger malt-liquors is very simple: That no one should take them who does not gain *perspiration from exercise* at least once in every twenty-four hours. This perfectly accords with the doctrine I have laid down as respects the use of alcoholic drinks—namely, that as all the organic functions are stimulated by them, chemical changes more rapidly ensue, and the excesses of acids produced in the system require to be carried off. The effects of fermented liquors on nurses with infants at the breast are somewhat analogous; for the supply of milk to the latter is not dependent on the quantity of beer or porter actually drunk, but on the effect it produces. It will always be found, likewise, that where in the former case perspiration is readily produced in beer drinkers, the skin and kidneys are the organs derivatively affected, whereas in nurses the determination, from precisely the same causes, is to the mammary, or milk glands. Bottled ales and stouts are not so good as those on draught, or drawn from the butt or barrel, because they contain fixed carbonic acid gas, the effects of which I shall speak of presently, when I have finished the subject of beer.

Be it remembered, nevertheless, that no beverage is more adulterated by extraneous ET CETERAS than the ales and porters sold by publicans, most of whom make three barrels out of two, or in other proportions, according to their consciences and peculiar mode of dealing with these liquors. Neither are *they* solely to blame here; for the great brewers, on whom they depend, allow them so inconsiderable a profit on ales and beers, that, as all tradesmen must live, it follows, almost as a matter of course, that Boniface adds pump water, molasses, and other ingredients, to make an uniform compound essentially different from the pure article received from the brewer—a filthy manufactured compound which, instead of doing good and quenching thirst, as pure beer would and ought to do, causes only still greater thirst than before; and we may safely say that it is not beer at all which causes the deplorable drunkenness of this metropolis, or elsewhere, but simply the publican's ET CETERAS; and thus is it that one sinner makes many.

The crime, the poverty, the general wretchedness produced by drunkenness has so often been exposed by the talent of our best writers, and is so well known to the world at large, that I need not give the subject more than a passing notice. My own opinion is, that if the malt and hop duties were at once and for ever swept away, the monopolies of the great brewers checked or destroyed, and every one allowed to brew and sell his own beer without a license who felt disposed to do so, a pure beer would be the result, and the filthy DRUGS AND ET CETERAS that do so much harm at present would cease to be used. Crime, too, would soon be on the decrease, and the country would save, in the support of its criminal establishments and all connected therewith, more than it gains by the duty on malt and hops.

It is not the character of our countrymen to live at cafés and restaurants, like our continental neighbours, but rather to make their homes comfortable; and what has to be spent over and above what is required for the wants of the house and family, would, in a healthy state of social morals, be laid out in excursions by train or otherwise, for the purpose of free movement in the fresh air, and all classes would gain a further impetus to their health and comfort; whereas, as things are at present, the expensive charges of our hotels and public-houses, too well known to need comment here, generally prevent this mode of enjoyment.

On the continent of Europe and in the United States, the comforts and luxuries of the hotels, cafés, &c., combined with their cheapness, form a striking contrast to those in this country; and the result is, that the public live in them almost altogether—using their dwellings only for business or sleeping.

The genius of this country, on the contrary, is for people to live at home, and they would do so more, if they could get everything in a pure state. At the public-houses and gin-palaces rarely is anything sold that can claim to be considered pure and unadulterated in the shape of liquors. The brandy, rum, and gin—especially the latter—are little else but abominable compounds and slow poisons; and gin is sold by most of them at per gallon twenty or thirty per cent. below the duty on raw spirit.

A fashion has lately grown up, which—considering the extent to which all fashions will run—threatens greatly to militate against public health: I mean the very general, but excessive and most pernicious use of the effervescing beverages—namely, soda, potass, Carrara, Seltzer, and other aërated waters. Now I wish the reader distinctly to understand that I do not reprobate their entire use—far from it; I only speak of their abuse. To what, let me ask, do they owe their effervescing qualities? Why, to free carbonic acid gas; which, as I have already clearly shown, the lungs should always have predominantly for their condition of health; and, as health exceeds disease by at least ninety per cent. on a moderate calculation, those who take these waters are continually adding to that of which in many cases they have already too much. Persistence in their use, therefore, not only enervates the system, but poisons all the secretions, weakening all the functions of every organ in the body. Then, again, they are given with wine, or brandy, or other spirits, on account of their sharp flavour; and I have seen invalids continue to take them, alleging that they have such irritable stomachs that they can take no other drink.

When once persons begin and persist in this habit, they soon become positively unable to keep any other liquid down, as they tend irretrievably to weaken the stomach. Invalids, then, may bid adieu to all future healthy conditions of that organ, when once they adopt this practice. If the system be deficient in carbon, as it may well be supposed to be not unfrequently, when it is the fashion to give so much cod-liver oil, I have been surprised that this fashionable remedy has not been ordered to be taken in conjunction with the aërated waters. Of this, however, I am well convinced, that these two remedies—the one a medical agent, the other standing midway between the medical and dietetic agents—have been given indiscriminately in every conceivable state of the system, and thus regularly quacked by the profession—ay, quite as much and as universally as the mercurials; nor does this coquetting with new loves and new things speak well for the truth of any swain in the faculty.

The pernicious and excessive use of the effervescing beverages is too glaring to allow of my passing them over. It is pretty well known and understood in fashionable or well-to-do life, why the glass of soda-water is taken so early in the morning. The practice is absurd, however; for if the system is able to indulge in the luxuries of the table, it cannot be in an inflammatory condition, but rather in the opposite or congestive stage. Instead, therefore, of taking free carbonic acid gas (that gas being already in excess in the system), a few grains of carbonate of soda with a few drops of sal volatile in half a tumbler of water would disengage a proportionate quantity of carbonic acid gas from the stomach and lungs, and the effect would be to form a neutral salt, which would beneficially influence the whole alimentary canal. I may here, however, be met by the same arguments I use myself—that always taking soda is injurious. I say no such thing. The profession and the people themselves already indulge in quite sufficient follies, so that there is no need for me to give them another to abuse by excess in its use. Those who do not commit the folly of excess, either as gourmands or gourmets, require neither soda, aërated waters, dinner or aperient pills to set them to rights; for as to what they take in reason, Nature knows better than themselves, what to do with, and how to dispose of everything in the wisest way. Those who do commit excesses may at least be guided as to the mode of preventing the diseases that ensue therefrom.

Assuming the principle that the three distinct actions of disease are acid, alkaline, and neutral, I hold that the only truly philosophic mode of treatment is to correct all excesses or deficiencies of either by calling to our aid the known properties of material substances. This, indeed, has ever been shown to be the correct empiricism or practice by experience; and these facts, so abundant and almost daily added to by generation after generation, make a most formidable array; so much so, indeed, that for want of order and scientific arrangement the practice of medicine has been little else than a mass of facts stored up in the memory, which must ever be treacherous in retaining them, and uncertain, therefore, as to what is really best to be done.

For want of a proper system, in short, every man does his best in his own way; and hence come the adages—"So many men, so many different opinions," and "Doctors differ and the patients die." The consequence is, that proper or improper medicines are given haphazard—by accident, not design; for where proper, and the patient gets well, it would puzzle a conjuror to tell how; and where the improper ones have been given, even with the best intentions, the reverse often happens in the face of the best authority, and no one can tell the reason why. To apply medicines, therefore, with any degree of certainty, there must be some law, some scheme of procedure very different from that observed at present.

Now, when the system advances a stage beyond the due predominance of acid, and is inconvenienced by its excess, the correction by reducing it to its natural standard seems to suggest itself at once, as a simple end; and such indeed it is. I have elsewhere said that at least ninety per cent. of all diseases, and certainly all without exception in their first stages, are *acid diseases* —*ergo*, requiring alkaline correction; but as to any pretensions that the homœopathists put forth when they give alkaloids, I maintain that they have merely *accidentally* hit upon a treatment which is diametrically opposed to their doctrine of *similia similibus curantur*, or "like cures like." In short, they act as much without philosophy (though they may here be *accidentally* correct) as other people; and inasmuch as their remedies are given on the Scotch principle of "mony mickles mak a muckle," they may succeed in stopping the primary elements of disease. When that disease, however, advances into the alkaline stages—that is, among the fevers and inflammations—they then—*still accidentally*—fly to the use of the acids, leaving their blank for their ball cartridges, but, for want of a regulation charge of powder, fail. If, therefore, the primary elements of disease are corrected by those principles of diet which I have laid down, and by free exercise, which promotes the action of the excretions, the body is effectually relieved of its oppressing superfluities.

Should the disease move on another step, so that the absorbent vessels cannot by any natural amount of labour relieve it, or the glandular system becomes obstructed, both require stimulating; for all these are congestive or acid actions. Bold doses of the alkalis, therefore, combined with the stimulating actions of sal volatile or sweet spirits of nitre, or sulphuric ether or camphor, all have the desired end. If empirically useful then, why not go a step farther and make them by induction philosophically useful?—say, in short, that they reduce excess of acid, neutralise acidity in the alimentary canal or *primæ viæ*, and excite the great actions of the skin and kidneys, so that an almost fabulous amount of acidity is carried off, which after all is no more than the truth. If, however, we are called on to use our arms and implements of warfare against disease in a bolder way, we then give, in addition to the above, antimony and ipecacuanha.

Now, if we inquire into the action of all these combined attacks on disease, we shall find that we have aided many latent powers in the system; for when it is in its most acid states, the process of neutralising these elements causes evolution of carbon or heat, and a copious escape of carbonic acid gas is the result. This is especially shown in congestion of the lungs and the various forms of cough produced thereby. Mucus is dissolved and expectorated in large quantities. Here then will be seen the beneficial effect of combining stimulant expectorants,—such as antimony, squill, ipecacuanha, with nitrate of potass, tartrate of potass, carbonate of soda, and with the neutral preparations of the gums tragacanth, acacia, &c.

Supposing the disease to go yet another step in advance—supposing the enemy to make a combined attack in columns, and to appear in force in every part of the body, and that apoplexy, with its grim attendant, paralysis, follows in the rear, we have then to commence a vigorous defence of the castle of life by all the above-mentioned remedies. The light brigade of the simple alkalis above mentioned always does good service; but we are here and there compelled to bring up the heavy artillery, and forsooth draw blood boldly and resolutely. Now, in all these pitched battles with disease, there is one arm which has always been a favourite; and though perhaps many battles are supposed to have been won by it, I am inclined to think that victory has frequently been as disastrous as a defeat; and that is, when calomel has been used, which is called in nautical language the doctor's *sheet-anchor*. I have elsewhere told you that it is a neutral preparation, a salt—in short, the chloride of mercury; and for this very reason I have for years questioned its usefulness in the teeth of the elective action of the system and of what is called the highest authorities in medicine,—that is, what nearly all in the profession are taught to give, and do give—Heaven knows—to their entire and mutual satisfaction.

Mercury, indeed, when once used, is like a rebellious or disobedient regiment: it may obey the immediate orders of the general, but it is in vain to sound the recal; or again, it is like a maniac let loose with arms in his hand, and after it has accomplished all that was supposed to be intended, still continues its havocs, which must be counteracted by other forces. There is always great trouble, too, in convalescence after mercurial salivation, long after the real enemy has been overcome. In short, this is ever the source of the chief trouble; for no drug ever complicated disease or disturbed the natural elements of the body equally with mercury. Mercury, in fine, has never been found as a natural element in any part of the body, either solid or fluid; and I boldly predict, that at some future day, when order has been brought out of chaos, when chemistry has fully and fairly balanced its accounts with the natural elements of the body, such drugs only will be used as have a pre-existing analogy therein.

In restoring the system, then, to its proper laws of action by the reduction of excesses, the second class of neutral medicines—namely, the non-chemicals—are highly useful. Then come to our aid the bitter alkaline infusions, the tinctures and spirits, the warm actions of such neutral powders as ginger, &c., and the various forms of what the ancients called *stomachics*. When the system, likewise, after violent acid attacks, requires the gentle action of aperients—in cases especially where the digestion and appropriation of the proper diet pointed out for this stage of disease becomes somewhat incomplete—the neutral preparations of the extracts of colocynth, jalap, and rhubarb, or the powders of jalap, rhubarb, and scammony, as well as some forms of the alkaline compound powders of chalk and cinnamon, or, if necessary, castor oil may be used with great advantage; for they all aid in carrying out a principle and mode of action that are at once beneficial and truthful, and show at least a systematic arrangement.

In all the great families of diseases, ranged under the head of acid disorders, wines, spirits, and malt liquors must be strictly withheld from the patient; for, however good they may be in a state of health, in their use, that is—not their abuse—when a departure from this condition has placed any part of the body under medical treatment, these stimulants must be for a time excluded, except under certain regulations. In fact, they all produce acidities, where the state of the body has a disposition in that way, and those are most to be avoided which have that tendency most strongly. In all acid conditions of the body, too, that are attended with debility, fainting, &c., the same system should be carried out with respect to what is inhaled or smelt at, such as Preston-salts, hartshorn, ammonia, and sal volatile, which are the correct appliances under such conditions.

Having thus far dwelt on the peculiar laws of the excess or superfluity of acids in the system, without particularising the legion of diseases that array themselves under this head, but merely pointing out by the laws of matter that they should be corrected by their opposites, I shall next proceed to consider those diseases which come under the denomination of alkaline, as contradistinguished from the acid—namely, the inflammatory actions and fevers. When we look at the former class of diseases, in which we are accustomed to give alkalis, stimulating expectorants, and even in some cases of depression and exhaustion alcoholic stimulants, our desire in so doing evidently is to awaken dormant actions to fresh energy, to remove accumulated matter, wherever situated, that oppresses either organs or passages and prevents functional ability; in fact, all excess of morbid elements, humours, or secretions, that lie as an incubus in any part of the body causing general obstruction. Now all this seems so plain, if we only reflect on it, and the philosophy of the diseases against which we are contending is so clear, as at once to point out their mode of treatment; and we have simply to ask ourselves the question, What is the object of all our prescriptions—in short, what are we really about? Why, we are reducing and removing obstructions and congestions.

We have now before us a class of diseases which are so active as even to take away and destroy the very elements of the body itself—those powers on which it relies for its self-dependence, diseases that become every hour more inexorable, and even forbid the use of the elements destined to renew the structural parts; so that the body, in short, is precisely in the condition of a candle lighted at both ends (for most assuredly the light of life is being most rapidly consumed). Our first act here is to arrest this progressive destruction, to stop excessive functional action, to keep everything in the system, and prevent all escape of vital elements; and this, it will be seen, is effected by a very simple process. As we before gave alkaline and neutralising agents to correct excesses of acid, and to reduce the system to its normal standard of the simple predominance of acid, we have now, on the contrary, to raise the system up to that point, by supplying its deficiency of acid; for fevers and inflammations have so completely upset its predominance, that it in fact no longer exists.

The safety of the patient, therefore, now rests in the administration of acids and opiates. Now, these are so clearly the opposites of the former remedies, that we are compelled either on the one hand to establish a philosophy for their use, or, on the other, to continue to practise empirically, without asking ourselves any questions at all. Practice, we are told, has found such and such things to be useful, and so we are to continue them; but as for explaining *why* they do good, the only answer given is that all authority sanctions it, which is nothing more than reasoning in a circle, or not reasoning at all. This, however, is not the language of true science; it simply belongs to what up to this hour is called the "Art and Mystery of Medicine:" and this it is, which I have to contend against in establishing my philosophy of health and disease.

Opiates allay all pain and stop excessive action; in fact, their very uses are to hold in check elements that are running away, organs that overact, functions that work too fast; while the acids —such as the sulphuric, muriatic, or chloric, nitric, and acetic —supply what the system has lost. Now, all these elements are found in the body in their various combinations, in the salts of its blood and secretions, and in its vital gases, as well as in the constituents of its solids. Can anything be more simple, more true, more philosophical? It is a great fact, not to be disputed; nor can any reasoning shake this law. What have we done, then? We have actually given the system that vital principle, in which it was at first deficient; and unless we continue this up to the point of restoring it to the normal state of equilibrium as respects the predominance of acid, we have not effected our end. When we have once done this, however, and find a fever or an inflammation in any part, of a character to threaten life, actually retiring before our treatment, are we simply to say, "The crisis is past—the patient is better;—so much for the art and mystery of medicine?" Are we perpetually to hold up the fruit of the lime and the lemon-tree, and say, "Here are the remedies for scurvy," a disease which has carried away every acid from the body, and which these juices are designed to replace; and shall we then say, "Here is a fact, we want no philosophy?" Accident, usage, and the rules of the schools have pointed them out as beneficial; and hence they have been handed down from generation to generation as the wisdom of our predecessors; but shall we, when they have failed to assign reasons for the unquestionable usefulness of such medicines, be content to follow in their track and ask no questions? To do so were, indeed, a poor compliment to the genius of this age of progress.

Fever is accompanied by thirst; and the opiates are bitter, as well as sedative and narcotic. Is this fact to pass unheeded? The spleen, again, is always functionally disturbed in fevers, and more so in some than in others. A bitter element seems to be required for the system when it is deficient; and it seems to be most deficient when the spleen is affected. Surely, then, we may ask,—has the spleen anything to do with this great fact? I have endeavoured in another place to give a solution of this question.

To return to the consideration of opiates, I very much question whether we do not lose some of the more valuable constituents of opium—that is, the bitter extractive principle—when we give it alone in the form of the chemists' compounds, the acetate, citrate, and muriate of morphia, which contains its acting narcotic principle; for though we globulise these medicines and become to some extent homœopathists, and though, the acid being combined with the alkaloid, the system may hence gain something by relative action, yet in cases of fever we lose the benefit of the bitter extractive in the crude gum. For my own part, I have ever distrusted these preparations, and have never found that supposed unwillingness of the stomach to retain the opium itself which has been asserted by many writers. On the earliest introduction of these alkaloids I found I could not depend on them; but I never have lost reliance on or failed with the crude opium in the very selfsame cases, where I have been told that the system could not bear it.

I fear, indeed, that all my counsels have been in vain; but I will at least repeat what I have said a thousand times in practice, that when opiates, anodynes, or narcotics are necessary for allaying pain or restlessness, *the tongue alone can point out their character and modes of administration.* These soothing drugs differ, in fact, very materially in their characters; though hitherto they have been considered as the negro considered his dogs—" Cæsar and Pompey berry much alike—'specially Pompey." Now, none are alike; and in their administration the whole error lies. I have said that opiates arrest all action. If, then, they are necessary, and, in fact, absolutely called for, in fevers and inflammations, this state of the system must be accompanied by a dry, brown, red and glary, or clean tongue. If they are administered to relieve pain and suffering, when the tongue is furred and moist, indicating a congestive condition that requires accelerating actions, what is the consequence? Why, they arrest this action; the moist, furred tongue becomes dry and brown, and the patient feverish, all from the use of the opiate. Why then should we quarrel with this fact when we can solve it? Let us rather tax our own follies for not knowing better. Here, then, the door has been opened for the use of the acting principle of the drug,—those preparations, namely, that are known under the name of morphia. But never—mark me—administer them, when there are anodynes that will efficaciously combine with the alkalis; such as the hyoscyamus or henbane, conium or hemlock, sulphuric ether, camphor, &c. Henbane in particular is one of the most valuable of medicines in pain, restlessness, or lack of sleep, when the body is *in an excessive acid state*, while opium is best when there is *alkaline or inflammatory action.*

No man can have much discrimination in disease, or properly comprehend the distinctive action of his remedies, if he gives opium in congestive and acid actions; and yet I see this constantly done, and have no doubt the practice will continue till a perfect system of Glossology has been engrafted into the practice of medicine; for that alone will unravel many of its mysteries. At present no one can be blamed: all do their best, with the best intentions; and if medicine acted in the patients' bodies as it does in the physician's brain, disease would have been banished from the face of the earth long ago. It is obstinate, however, and will not be driven out; and I should very much wonder if it were, when medicines are so very unphilosophically employed.

The uses of the acids and opiates, once more, are to arrest runaway actions, if I may so express myself, and to implant in the system those properties in which it is deficient. The use, also, of those articles of food that I have classed under the term acid diet, which leave behind them in the last act of digestion acid elements, is here enjoined. Those who have not practised these things will be the most prone to cavil at the arguments here used; but let them try them first, if possible, with unbiassed minds, and they will find my views perfectly correct, and based on a sound philosophy.

Once more, in the fainting and debilitated state of patients under all these alkaline disorders, let the same system be followed out in what is smelt or inhaled; and nothing will be found more grateful than the vinegars, aromatic or otherwise, when dabbed on the forehead and temples, or poured on live embers to fumigate the room, or else inhaled by the nostrils. Were these acid fumes introduced in the acid or congestive stages of disease, they would be repugnant to the patient, and produce pains in the *back* part of the head, with nausea, whilst the alkaline fumes in the fevers and inflammatory actions would produce pains in the *front* part of the head, with giddiness, and even delirium. As respects the beverages to be given, I need scarcely add that they should be milk and water, sugar and water, or lemonade, with acid and slightly bitter infusions. If, as frequently happens, the system requires slightly stimulating, then the weaker light clarets, vins-ordinaires, and Rhenish red wines, which contain little or no alcohol;—all these may be taken, neat, or diluted according to circumstances, or sweetened with sugar.

With respect to inflammatory sore-throats, the acid gargles are necessary; in inflammatory coughs, the linctuses, which in the old pharmacopœias are designated as oily unctuous substances of a honey-like consistence, to which opiates have been added by the moderns. Here, too, let me repeat a warning that cannot be too often insisted on—namely, that coughs are of two kinds, the congestive and the inflammatory, and a linctus should never be given in the former. I have seen the irritable scientific stethoscopist in the wards of an hospital exerting his sense of hearing to a most unnecessary extent, when his eyes, if he had but known the indications of the tongue half as well as the sounds of the chest, would have given him far more truthful information, ordering the sister to give a noisy, barking, coughing patient in a neighbouring bed, a linctus! From curiosity, I have asked to see the patient's tongue, whereupon my remark was, "Alas, this is shutting the enemy up in the camp, and preventing the escape of the expectoration caused by congestion: a nice inflammation, dyspnœa or difficulty of breathing, with hectic flushes, will be the consequence of this treatment tomorrow." Oh, when will the tongue be more studied? Were it so, I am satisfied that the diagnosis would be easier and more sure, the treatment also proportionally more certain.

In all cases of congestive action in mucous membranes, plenty of fresh air is desirable; for the oxygen therein contained serves to neutralise so much more carbon in the lungs. In all inflammatory actions the temperature must be raised, though the air is still to be kept pure, because the warmer air does not contain oxygen in too concentrated a form, and there is less carbon in the air-passages. Above all, never forget, in treating all lung affections, the vast difference there is between *bronchial congestion* and *bronchitis*, the latter of which is inflammatory, the other not. The first requires alkalis and stimulating expectorants to expel the enemy from the camp; the other, acids, anodynes, and linctuses, to arrest the enemy which is wasting it. Such is the difference between the two; and this simile applies through all the changes and incidents of these two distinct actions, from the minutest to the most formidable symptoms.

The third class of diseases, which are mixed in their character and often very indistinct, is that which I shall call NEUTRAL. They require for their treatment all the medicines of the pharmacopœia, to be changed as often as they change themselves. These maladies always have baffled, and always will, more or less, baffle the skill of the wisest physician. They embrace all the organic diseases, whose duration is only a question of time; and it is here, that when we are unable to make the bed, all left to us is to smooth the pillow of disease, and at least assuage the pains of an ebbing life, whose close is gradually, but surely approaching.

To this class belong all nervous, hysterical, and hypochondriacal disorders; all those ill-defined and baffling maladies which prostrate and gradually destroy; all those complaints attending and resulting from irregularity in the peculiar constitution of the female, where there is at one time a deficiency, at another an excess of power (when all the forms of iron that promote actions are administered on the one hand, and all those forms which check action on the other); and again, every species of irregularity and combination of the two great distinctive families of disease, acid and alkaline, requiring their respective remedies and diet. These, I affirm, are the cases which baffle science in its broadest and most extensive schemes and resources; and they are those, alas! where the patients often fall a prey to the vilest quacks and quackery. These can do no more good in such cases than the more prudent and scientific physician; but as they are less careful, less considerate, and less feeling, though far more pretentious in their promises, patients get entangled in their snares, and become lost for ever, dying in pain, unpitied by their merciless tormentors.

Whatever elementary disturbances exist in this large class of diseases, there is nothing in the natural state of them, or the laws that so intermingle them apparently, as their combination with what may be termed *drug diseases*. There are some cases which exhibit such confusion of disease, that they may fairly be said to have no natural one at all. The whole round of scientific doctoring may have been tried, and even that which is unscientific and fallacious; yet the patients are still left in the same Protean and changing state as they were from the first. Nay, they are even worse on the whole; for, where persistence in simple and judicious treatment might have availed, the sufferers have no time " to wash in Jordan seven times." Nothing will suit, short of some great prodigy of a cure, some new remedy, or some new and mysterious person to administer it. In cases like these, the principles I have laid down on a glossological basis will, if given laws are attended to, be found to answer best. These they are, that have called into use the *neutral* medicines, or those compounds under the first-mentioned head—those, namely, in which an acid and an alkali are united.

The elective agency is constantly mentioned in chemistry; it is seldom or rarely used in the precepts of medicine; which is surely a strange oversight, considering that it applies far more forcibly to the body, where ten thousand crucibles are always at work, than to facts belonging simply to the manipulations of the laboratory. It is mostly from the uncertain and occult actions of these compounds, that the system gets its array of drug diseases; for these again come under the head of neutral diseases, giving rise to trials of every new drug devised by the pharmaceutical chemist, from the raw article in actual bulk to its most refined acting principles. These diseases, in short, have raised up the quack, brought the homœopathist into being, and set up a professor for the cure and treatment of every organ of the body; and every one of them has his peculiar specific.

Of all the compound drugs in the pharmacopœia that are used indiscriminately, never had any such a run as the MERCURIALS. I would undertake to prove this by reported cases; and therefore it is no fiction. There is not a disease which ever bore a specific name, nor one among the thousand cases where doubt existed, or among the anomalous brood of medical curiosities and facts connected with human suffering, in which the mercurials have not been used, and not only that, but played a prominent part in the treatment. It is more than any other a drug that has been given in season and out of season; for direct as well as for indirect actions; for rousing the system, as in cholera or apoplexy; and for depressing it, as in febrile excitements; in the absence of all pain, and in the highest equally with the lower stages of congestive action, as well also as in the painful and agonising thralls of serous inflammations; in short, in all gradations of disease, and even where there has been none whatever. Added to all this, it has been given in all conditions and temperaments, and continued, where it could be borne, till its awful effects have at last shown themselves in the breaking up of the system.

Why, it may be asked, has this remedy been so universal? The answer is, because the laws of disease are not understood, and, consequently, their remedies are not placed on more simple bases. Calomel, in some constitutions, may act as a temporary charm; in others, it excites and drives to madness. Who would give it of deliberate purpose, knowing that such would be the result? No scientific practitioner;—for all such are ever too feeling and too kind. How is it given then, except from ignorance of its effects, and a morbid, false idea of the duties and powers of one particular organ? The poor, poor liver! without a friend and with ten thousand foes! If calomel acts on that gland, it acts on all other glands in like proportion, wherever situated. Why does it salivate the mouth; and by excess of action loosen every tooth in the head? I have seen, and I know those who have been salivated by a single grain of the mildest mercurial preparation, because the peculiar opposition of the constitution to its use was not known beforehand. Others, who could not bear it, have protested when it has been given; the reply has been, "I am astonished; I gave you no more than I should give a child." No matter; the rule seems to be, if there is any doubt what to give, to give calomel. Were calomel and the mercurials to be forbidden to the profession by act of parliament, the whole faculty would be like a pack of hounds that had lost the scent.

Now, the effect of the mercurial preparations consists in first giving a powerfully stimulating action to all the secretions in the system, and secondly, a powerfully depressing one. But look at the intermediate effects in a vast number, a large percentage of the unfortunate takers of this vaunted remedy! Notice the haggard countenance—the distressed expression—the wild restless eye—the excited mind that bids defiance to all sleep, and, if sleep ensues, then "perchance to dream" what dreams? Such as might be suggested by Virgil's or Dante's description of the infernal regions, or by our own Shakspeare in Clarence's dream. Read that!

I have carefully observed the peculiar complexion of habitual takers of this drug, as well as the complexion and singular appearances of the skin of those who have been saturated with it for some complaint at some time or other, and they are appearances which cannot be mistaken. They consist of patches, independently of a general sallowness and muddy state of the skin; and these patches are of such a colour, that if putty, whity-brown paper, and an old drum-head were amalgamated together with sun-freckles, this, perhaps, would give the best idea of their appearance. Being an enemy to the abuse of the mercurials, I have called these appearances the "devil's marks," or the "marks of the beast," according to circumstances, because the face is the part that exhibits them most frequently. Along with the peculiar colour of the general complexion, patches of the above elegant character will appear just over the outer third of the eyebrow, between the temples and the forehead, or a patch will cover the centre of the forehead, not quite in the shape of the horseshoe described by Sir Walter Scott on the forehead of Front-de-bœuf, or that in the breast of an old cock partridge, but rather more triangular.

These patches occur again at the upper part of the cheekbones, a little to the left, under the outer corners of the eyes. Again, they are seen in smaller patches on the face and on each side of the alæ of the nose; they come, also, upon the upper lip, taking the place of the moustache, and are especially unbecoming in women. They appear again on the centre of the chin; but their position is more frequently just on each side of this. They are not to be mistaken; and, when once they take up their quarters at either of these stations, they always remain. Sometimes they are more visible than at others, and this is the case when all the other portions of the complexion seem more than usually clear; for when the latter are muddy, the contrast is not so great. Some persons are awfully disfigured by them, others not so much; but there is no mistaking the calomel or mercurial complexion in any one. Men carry it off better on account of their whiskers, &c.; but women, not having that friendly covering, exhibit these blemishes to great perfection.

Facts like these assuredly offer no great inducements to take this drug; but still, if people *will* persist in believing that they have livers, that nothing can be the matter with them without the liver being more or less sluggish, and that calomel is the only drug that does them good or can act on the liver,—so be it! They may not get stamped with the "devil's mark" while they are young; but, as sure as fate, they will begin to show it, after they have turned thirty; and, when they ought to be still young-looking, they will begin to show wizened faces. I hope, therefore, that what I have said may be a warning to calomel-loving mammas, who keep their little weights and scales and a bottle of calomel to give to themselves, their children, their servants, their friends—everybody, in fact, that comes under their pernicious drugging influence. One only disease do they know or recognise,—and that is " liver ;" one remedy only,—and that is " calomel." And then they wonder, forsooth, that they are always ill, that they feel every change of wind and climate, and that, when they carry their thimbles or silver loose in their pockets, these always turn black! How can it be wondered at, when such people make themselves living barometers, and become, as it were, a sort of mercurial mine?

As respects my researches for the distinct laws of disease, aided by the discovery of a well-based system of Glossology, it might be reasonably supposed that they would be of no avail, if something approaching a degree of certainty in the administration of medicine could not have accompanied them. I have condemned the mercurial treatment so strongly, because, in fact, it forms the largest item in medical practice; for where any doubt exists as to what should be given, no doubt whatever stops the administration of calomel or blue-pill; applause always accompanies the act, and, happen what may afterwards, everything has been done that could possibly have been done, if that has formed a part of the treatment.

In differing, therefore, from universally received authority, I have been asked a thousand times, " What can you give as a substitute for calomel or blue-pill?" My answer is, " I have no substitute for them; but as I take a very different view of disease, I treat it differently. Where *you* give these drugs in congestive actions having reference to the liver, *I* should give an alkali and a bitter medicine; and where *you* would give mercurials in inflammation, *I* should give an acid, an anodyne, or an opiate, with or without a bitter combined." I view the general condition of the system, knowing that it is through this that all disease must be treated, however specific or distinct that disease may be, and however scientific you may be at discovering it in any given holes and corners of the body; for though it is the province of scientific medicine alone to investigate such specific character of disease, it is certain that it can only be got at or cured through general treatment.

As I have patiently investigated all these laws, whereon a safer practice on broader principles might be based, and those, too, equally, or even more efficacious than those usually acted on, these papers, to say the least, attest some diligence; and, as I write chiefly for the million, I feel justified in telling those who indulge in amateur or domestic medication—or those, again, who, from necessity, emigrate to the colonies and have none but themselves to look to for relief in sickness—what plans they may themselves pursue with simplicity and safety, while at the same time excluding the mercurials from their small stock of medicines. When once they touch these, they are launched into a sea of difficulty; for surely, if the faculty so often find themselves out of their depth, how much more must those who have no knowledge of the correlative sciences to fall back upon!

So far from deeming the mercurials either necessary or desirable, I can look round and see whole families grown up to maturity, and many married whom I assisted to bring into the world, who have never had any mercurial at all, yet who, nevertheless, have had all those ailments and diseases for which, in the language of modern medicine, that drug has been considered the "sheet-anchor;" and I can safely say that all such are as healthy in organic and functional arrangements, or even more so, than those who have taken mercurials in a general way; nor can I conscientiously tax myself with having lost a single case through an obstinate or vexatious opposition to their use. Such conduct, indeed, would not only have been reprehensible in the highest degree, but beneath the dignity of science, philosophy, or Christian duty.

These drugs, it is true, are sometimes imperatively called for where they have been once used; and they may be actually required again:—where no other medicine seemed to meet the requirements of the case, I have employed them. Still, I distinctly affirm that such cases have been of rare occurrence; and when the general principles I have endeavoured to develop in this book become better understood, the truth of what I have stated will be most apparent. I have materials, and notes, and living cases to prove, that although a previous habitual use of calomel and blue-pill had so enlarged the liver that it could not act without them, yet a steady persistence in a wiser course, more in accordance with natural actions, has reduced that organ to its normal state and size. This has seldom been done, however, without great opposition;—so strongly is the mercurial fever fixed in the public mind.

The practice of medicine, so far as the administration of physic is concerned, has hitherto been too much a blind routine, full of false theories pursued without philosophy, and has given rise to a vast amount of uncertain treatment and needless physicking. Whilst all the correlative sciences are continually advancing; while the microscope and chemistry are ever developing new and astonishing facts, and revealing the marvellous structures of animal existence, and their changes in health and disease; while everything, in fact, has been and is being done that bears on construction and diagnosis, yet, directly these are made known, and disease is to be counteracted in all its thousand varieties and shapes, science is at fault, though it be the very end and sole aim of all this study, this labour, this research, to relieve and cure disease. Marvellous as it may seem, directly the remedy is to be applied, supposition guides it, chance directs it, and uncertainty follows it. In the present state of things every one does his best; but if Nature did no better, it would go very hard with us indeed. The public—the million—care nothing for our toils, our studies, our science, or our theories. If they are ill, they want to be well as quickly as possible, and give themselves no trouble as to the way in which this is brought about.

The public, however, must be told that drugs cannot cure of themselves, but that their usefulness consists solely in correcting the natural drugs or secretions of the human body, that their own alembics, and crucibles, and retorts, in short, are to be purged on the one hand of excessive chemical compounds, or on the other, to have matters given them in what they were before deficient, leaving the rest to Nature; and though she often does this in her own beautiful and simple way in all congestive disorders, she is as frequently compelled to act in a different and very summary manner. She does the former in all those cases, which fall short of the second great family of disease—the fevers and inflammations ; but when she uses her more violent actions, and is in her more stormy and vengeful moods (and these probably are the only resources left her), she then produces to our astonished minds these very fevers and inflammatory actions. Again, when these subside, Nature once more benignly takes up the case, endeavouring to lure and coax the system into health; and as this balance has never been hitherto propounded, I have ventured to found my own hypothesis thereon. I have seen her in all her workings ; and I have seen her, when dwelling in powerful constitutions, not only act wisely and successfully against disease, but against the erring industry of man to keep it up, and finally bring out the system free and clear from the strife of elemental warfare.

Past ages always leave something for the present to do. In the actual and more certain administration of drugs there is much yet to be done. We must look differently at what disease really is, and endeavour to simplify and correct it. Something yet unrevealed must set these matters in a truer light; for science, like the extending ripples from a pebble thrown by a thoughtless ploughboy into a pool, extends more and more as we inquire into it. Every generation, however much its knowledge may have increased over the preceding one, will yet leave something for the next to discover. The great difficulty appears to be for men to disentangle themselves from the routine of thought belonging to the age in which they live, or to dare to oppose or think differently from it. So much, indeed, does what is called RECEIVED AUTHORITY and a certain CLASS-KNOWLEDGE pass current for real wisdom and science, that it is hugged, caressed, and worshipped, nay, commands whole armies of its slaves to maintain and do battle for it. Providence, however, rules all this, gives every generation its appointed duties, works by its own beautiful laws, waiting on man's necessities, and seems only to assist by stealth the onward progress of the world in all things.

# CHAPTER III.

## THE TONGUE THE BEST INDEX TO DISEASE.

The tongue the truest counsellor in the discovery of disease—The author's gradual recognition of this truth—Structure of the tongue described—Papillæ, their nature and functions—Anatomy of the tongue—Its appearances in health and during the diseases of different organs—Allocation of the different sections of the tongue to the organs of the body—Progress of disease, as indicated by the tongue—Fouling and cleaning; progress and causes of each—Divisions of the tongue detailed—Cracked and chapped appearance of the tongue in heart-disease—Influence of disease in modifying the shape and size of the tongue—General observations on the importance of GLOSSOLOGY, as an aid for ascertaining the seat of disease.

AMONG the various indications of disease, by which its presence or approach is made more or less manifest, both to the sufferer and the physician, none gives truer advice or speaks with more unvarying precision than the tongue—when its language is addressed, not to the ear, but the eye. To this conclusion I have been led by a train of observations conducted during a long professional experience. Indeed, full twenty years ago, I was led to suspect, that the amount of information, which medical men were content to derive from the varying appearances of the tongue in health and disease, was far less than Nature intended to teach, or true science would be ultimately satisfied to receive from such a source.

For the satisfaction of my own mind, I accordingly commenced a series of observations on the state and phenonema of the tongue in all cases of disease that came under my notice; treasuring up the results, and from time to time testing my inductions therefrom, as soon as I felt clear in my own mind as to all the various points. This done, and after often-repeated examinations of my conclusions, I sketched out the results of my inquiries, and embodied them in a paper which I read before the Physical Society of Guy's Hospital, and afterwards submitted to the public in a separate work, entitled "Glossology," published by Mr. Churchill, of New Burlington-street.

It is not for me to pronounce on the value of the principles that I have conceived myself able to educe by this process: I shall only say, that I have taken nothing for granted, or asserted aught, the proof of which has not been confirmed again and again, and that I am now in a position conscientiously to maintain, and with confidence also, that the condition of the tongue may be regarded as a faithful index to the state, healthy or otherwise, of nearly every part of the body liable to disease. Further, I will add, that the phenomena of the tongue, so far from being doubtful and hard to be understood, are governed by simple natural laws—the great laws of health and disease;—and the changes of these appearances furnish a ready diagnosis which, as being the most easily read, is consequently the best fitted for popular use. It is under this conviction, and after twenty years' practice, during which I never saw cause to differ from my first conclusions, and never found a case in which this mode of diagnosis could be said to fail, that I claim the serious attention of my non-medical readers to the observations that follow.

For the sake of illustration, we may compare the shape of the tongue to that of a well-made shoe with foot and instep; the instep being the thick muscular part next the root, and the foot, the thinner front portion tapering to the tip, which represents the toe. The thick muscular portion, which constitutes about one-third of its whole length from the root, is that most active in protruding, withdrawing, and governing its motions; and I call it, accordingly, the motive, or moving portion of the organ. This part is less intersected with minute vessels than the other or remaining part. The second or front portion, which appears to comprise about two-thirds of the entire length, besides its mechanical duties to regulate speech, &c., contains in it the chief apparatus for tasting and testing whatever enters the mouth, and is rendered exquisitely sensitive by the presence on its surface of a multitude of minute nervous structures.

Whenever we eat, these minute nerves perform a double function; they taste, relish what is appetising, impart a sense of pleasure to the brain, and instinctively select what is good, rejecting what is not so, and thus practically exercise a faculty of judgment. By watching animals, and sometimes even very young children at their meals, these processes may be very plainly perceived. The ox, the horse, the sheep, as they roll and triturate the food between their jaws, are constantly seen to reject a part of the mass before swallowing the remainder, and the infant, fed by its nurse, does precisely the same. Indeed, what is both remarkable and significant, as well in animals as the human race, is the fact that, when from any cause the tongue loses these faculties of relishing and discriminating foods, the individual is indisposed to take food at all.

The tongues both of men and animals appear thickly covered with minute red spots; but in man, who is much more highly organised than the brute, these spots are seen in vastly greater abundance. To these minute spots it is, that we are now to turn our attention. Scientifically, they are termed *papillæ,* and they always abound more at the sides of the tongue than within the immediate centre, and more on the tasting or discriminating, than on the muscular or moving portion. The papillæ situated on the back or moving portion resemble a cup and basin. All have flattened heads, and a narrow neck to attach the cup to the basin, in which they have a free movement that excites their secreting powers. The fluid they secrete is no doubt for lubrication; for it is most essential that this part of the mouth should always be well charged with moisture. In proportion as the tongue moves, so do these little balls rise; but when the former is drawn back to the hinder part of the throat, they are pressed down, and by this action the fluid is squeezed out of the basin. These papillæ at the back part do not appear to have any distinct tasting power, their use being chiefly to assist the larger glands. Those exclusively that are situated in the front portion of the tongue are the points of the true tasting apparatus.

Now, each of these minute papillæ is, in fact, the termination of an artery, and rises through a little bed or sheath of nerves, that forms a cup for it. In fevers, these little red-tipped papillæ, or arteries, become surcharged and distended with blood, in consequence of which they are forced more or less above their usual level: but here, mark, the little sheath of nerves, forming a little fosse or ditch, *never rises.* Here, then, is the reason why, as fevers increase, the faculty of tasting declines; because the raised papillæ prevent the food from coming into contact with the minute nervous terminations that possess the faculty of taste; and we see also, or ought to see, that the condition of the papillæ on the tongue may hence serve at all times as a faithful index to the state of the circulation throughout the entire system.

In scarlet fever, for instance, the papillæ are especially prominent, presenting a very lengthened appearance, so much so, in some cases, as to give the tongue the look of being tasselled at the tip. On the other hand, they are least visible, when the circulation is most languid, owing either to actual loss of blood, or to great prostration of power occasioned by disease. In such cases as those last mentioned, the faculty of taste may, and often does, remain perfect; because the nervous cup is exposed to perfect contact with the food. The appearance of the papillæ, therefore, can readily be understood to come in aid of the pulse, as a diagnostic of disease. In fact, the power which the latter indicates on pressure by the finger can be compared to the power that the blood is found to possess, when forced to the terminal extremities of the tiny arteries on the tongue. The reason why the taste is not so acute, when the tongue is very much furred or coated, is—simply that the little basins round the papillæ are so blocked up or enveloped in fur, that the latter are unable, from not being sufficiently above it, to conduct the fluid into them. In fact, the food passes over them, and all, therefore, except a very small portion, is tasted.

Physiologists have usually considered the papillæ as the terminations of NERVES, and for the following reason. On placing any pungent sapid body on them, it becomes instantly apparent to the taste; whereas, were it placed on any other part of the tongue, the taste would not be so keenly or quickly perceptible. The cause of this is, that the sense of taste is keener in a moist than in a dry state of the tongue. Thus, for instance, if a single grain of salt be placed on the top of one of the papillæ, the saliva or moisture instantly dissolves it, and it flows in a sapid form into the fosse or cup, the distance being so infinitesimally small that the solution is momentary. If a grain of salt, again, be placed on any other part of the tongue, it becomes immediately dissolved, and flows with the saliva through the pile into the fosse, or cup, at the base of the papilla, or arterial bulb, where the nerves immediately appreciate its presence.

Now, were the papillæ themselves mere nervous terminations, this sapid substance would have to flow to the top of them, before its taste could be apparent. Nature, moreover, would be unwise to place so delicate a structure as the termination of a nerve in so prominent a position, when so many substances either too hot or too cold are put into the mouth, the sensation from which would be a thousand times more painful than it is, if the nerves terminated here. Depend on it, the more we examine Nature, the more we must admire her wisdom; and surely it is beautifully seen in the protection of the sense of taste by a nourishing fabric and a fosse surrounded by a villous or pile-like coat, while at the same time the arterial bulb is capable of contraction within, or elongation through it. How admirably, too, does she provide a constant supply of moisture to dissolve solid substances and place them in a fit condition to be appreciated by the taste!

The tongue is not, as it seems to be, a single solid mass, but, like other members of the body, is composed of several pairs of muscles—a combination which, of course, tends all the more to increase its flexibility. One pair of muscles lies side by side down its centre, partially united with a smaller pair beneath; another pair lies outside of these, connected again with others more deeply seated; and again a third, but much smaller pair, flanks those last mentioned and forms the edges. Now, as respects my observations and experience of the phenomena on the tongue, the reader may, for general purposes, adopt the following brief rules:

The centre portion of the tongue, or the first pair of muscles just mentioned, indicates the position of the respiratory organs —namely, the windpipe and lungs; and it will be found that the appearances of this section, which may be termed *the respiratory tract*, are extremely varied in health and disease. If it be covered or coated with fur, that denotes a *congestive* condition; while, on the other hand, if it be completely denuded of fur, or is very bare and red, this indicates that the state is inflammatory. These are great points, and to be determined promptly and without delay; for on them depends the treatment to be pursued, and which in either case is of a diametrically opposite character. The parts thus assigned to the respiratory organs, however, extend only so far down the tongue as to exclude the tip; but there is a small portion, lying between the termination of that assigned to the air-passages, and immediately behind the tip, that has an oval form. This, whenever it is distinctly visible, is red, and indicates the *pleura*, or part outside the lungs, which is the seat of *pleurisy*, or inflammation of their external covering.

The tip I have assigned to the large intestines; and the various appearances it assumes denote various diseases in those parts, which, when it is coated or furred, are of a congestive character,—and, on the other hand, when it is bare and red, are of an inflammatory nature. The tip, however, is so seldom morbidly affected, that I shall have abundant opportunities in the following pages of alluding to the few diseases, to which the large intestines that correspond with this portion of the organ are subject; the tip is, therefore, less liable to abnormal changes than any other part of the tongue.

The next pair of muscles—those lying on either side of the central pair—includes the large space just within the edges of the tongue; and these I have found to indicate the healthy state, or the reverse, of the stomach and all those parts and organs of the body that are engaged in the process of digestion. It is a part, therefore, which may well be supposed to be more subject than any other to a variety of changes, both of character and appearance.

Thirdly, the small pair of muscles flanking those last mentioned, and constituting the edges, but which do not extend down to the tip, inasmuch as they terminate about a fourth part of the tongue's length from it, I have found to indicate health or disease in the brain; the white, clean, furred, or red aspects of these parts of the tongue indicating the different conditions of that most important organ of the human system. I shall hereafter, too, have occasion to show that the brain is less subject to disease than any other part of the body, excepting the large intestines.

Lastly, just at the termination of the muscles forming the edges, and between them and the tip, there is a space on each side about as large as the tip ; and these I have found to indicate the state of the kidneys. These parts, when there is disease of the corresponding organs, often present very peculiar appearances. Thus, when the kidneys are very much enlarged and congested, the fur is very distinct upon the pile, and has a bead-like appearance ; whereas, when those organs are in inflammatory action, they usually look red, bare, or chapped.

A tabular representation of the above facts, as far as we have gone, will perhaps make them clearer to the reader's apprehension. As respects the divisions of the tongue, then,

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|---|---|---|
| The *posterior third* of the tongue—from the back or thick part, | is | THE MOVING PORTION. |
| The *front*, or anterior two-thirds of the tongue, | is | THE TASTING PORTION. |

The papillæ on the moving portion are cup-and-ball follicles for the secretion of fluid to keep up the necessary moisture at this part of the mouth: while those on the front portion are a cup-and-ball apparatus constituting the faculty of taste,—the cup being neither more nor less than a bed of well-protected nerves, the ball simply the termination of an artery through it.

Next, as regards the various subdivisions or sections, and their allocation to the different internal organs of the system:

| | | |
|---|---|---|
| 1. The centre part, as far as the oval, | is apportioned to | The Respiratory tract,—that is, the windpipe and bronchial tubes. |
| 2. The Oval, situated between this part and the tip, | ” | The Pleura, or external covering of the lungs. |
| 3. The Tip, | „ | The Large Intestines. |
| 4. Parts on each side of centre, extending to the edges, | are apportioned to | The Digestive organs,—stomach, duodenum, liver, spleen, pancreas, and small intestines. |
| 5. The Edges, | „ | The Brain. |
| 6. The Sides, those parts which terminate at the edges, before reaching the tip, | „ | The Kidneys. |

Let us next consider the laws by which Nature indicates a departure from a normal state of health by the fouling or furring of the tongue. In a state of health the tongue is clean, not red, but rather of a pale rose-leaf or light pink colour. This is the result of the peculiar anatomy of the surface, which is made up of little eminences, each terminated by a white dot; so that, viewing it as a whole, it has the appearance just described. When the system is bloodless or debilitated, the whole tongue looks white; whereas, when it is charged with blood, the organ is more florid and of a darker colour. Now, as the system departs from its healthy standard, these little dots or eminences assume a larger appearance, and increase proportionately with the progress of disease, until they look like the pile on a piece of velvet; nay, sometimes they increase yet more in length, and assume a villous or hairy aspect. The tongue now is seen to be largely coated or furred on its whole surface;—and let us inquire the cause. Every little dot has become elongated, and they present in the aggregate the appearance of a very foul tongue; for the rapidity with which these dots grow is exactly proportioned to the rate of increase of the disease which caused it.

People sometimes scrape their tongues, with the vain idea, perhaps, that in so doing they are scraping off the disease as well. It is not so; the pile, however much scraped, will still grow, for you cannot destroy the cause by removing the effect. The only way to cleanse a foul tongue is to attack the cause; when the pile will cease to form and the long morbid growth will fall off.

Imagine not that Nature is at all inconsistent, or acts without law in the fouling of the tongue. Quite the reverse; and it is, therefore, most important to become acquainted with that law. On the first indication of disease, the fouling will be seen to commence upon the back part; and, as the disease progresses, the fur takes a given course, coming gradually forward, extending elliptically *from edge to edge,* until it reaches the *tip,*—the edges and tip being the last parts to become furred. Supposing this state of the tongue to exist, a train of diseases as certainly exists in those parts of the system to which these sections of the tongue bear immediate relation. On the decline of disease, again, the cleansing of the tongue keeps exact pace with the subsidence of the morbid symptoms, and it follows a peculiar process. The fur, or foul coating, *leaves the tip and the edges first,* gradually receding backwards, and thus reversing its former course. Instead, however, of taking an elliptical shape, as it did when on the increase, it assumes the form of a cone, the point of which is directed towards the tip.

Now, if you observe these phenomena closely, you will perceive that the more instinctive and animal parts of man—the stomach and lesser brain, or cerebellum, situated at the back of the head—are the first parts affected by disease, while the large intestines and the reflective portion of the brain are the last organs so implicated. This shows the beneficent and gracious care of Providence, in so controlling disease, that the most important organisms of the body—as the brain and large intestines really are—shall be the last affected by its inroads. Equally true is it, that in the process of restoration these parts are the first to resume their healthy action. The reason of this no doubt is, that most disorders are cured before they reach such a climax as to attack these organs. Be that as it may, any man in the profession of twenty years' practice will, if he recalls the number of such cases that have come within his own experience, fully bear out my assertion, that diseases of the brain and large intestines are exceedingly few in comparison with those of other parts.

The above observations are applicable to the tongue, as a whole. Reverting now to the division of that organ into distinct parts by its muscles, and to the separate sections that represent respectively the respiratory process, the digestive process, the brain, and so on, it will be seen that the same law is in operation. For instance, if the two muscles forming the central portion become gradually furred from behind forwards, within either limit of their own arbitrary boundaries, just as certainly will disease be found to make progress in the respiratory apparatus, of a congestive or non-inflammatory character; whereas, if inflammatory action supervenes, the furred portion will suddenly cleanse itself, and the surface become red,—the two actions being quite distinct, and obeying immutable laws. The same takes place with the outer parts. They will be found to be more or less furred, more or less clean, or even red, according as congestive or inflammatory action be present; and the same will be the case as regards the edges, viewed in connexion with disease of the brain. The tip, likewise, which is the index to the large intestines, presents similar phenomena, sometimes putting on a rough appearance, not observable on any other, and which may be owing to the fact of a congeries of vessels terminating at that point. The oval, as an index of disease, is never seen in any other state than bare and red, when it indicates pleurisy or inflammation of the membrane or external covering of the lungs, or its corresponding membrane covering the internal walls of the chest. With respect to this complaint, it is curious that it should attack the left side more frequently than the right, and it is always attended with pain; and I have noticed, that those who suffer most from pain in the side, produced by pleurisy, are female servants.

With respect to the sides of the tongue that correspond with the kidneys, I may observe that the young are seldom affected with disease in those organs, while elderly people, especially *men*, almost always have their disorders, of whatever kind, complicated with kidney affections, especially those who have been most indiscreet in their youth. These parts, let me observe, often put on most distinctive appearances; for should the tongue be clean elsewhere, these parts will still be furred, and that often in so marked a manner that the tops of the pile will look like sand. These phenomena, if once observed, are too remarkable ever to be forgotten, and denote an enlarged and congested state of those organs.

Reverting once more to the tongue as a whole, we frequently see it assuming a cracked or chapped appearance, varying considerably in different individuals. In some cases there will be merely two simple longitudinal fissures situated in that part which divides the central muscles from those outside them, while in other cases, in addition to the above, there will be two or three smaller cracks on the second pair of muscles. These indicate simple dilatation of the heart, and merely show that organ to be somewhat larger than usual. Again, you may see the tongue furrowed not only by these longitudinal fissures, but also by a considerable number of smaller ones as well, crossing at right angles to the others. In slight cases these lines lie across the centre line of the tongue; in others of a more serious character, they will be found to be very numerous, and the tongue itself will be of unusual size.

In all these cases, the walls of the heart are of an abnormal thickness, and the heart is much larger than usual. You are not, however, to infer from these indications, that the owner of such a tongue must necessarily be the subject of what is called *heart-disease;*—for a large heart may be an inherited constitutional peculiarity. I have myself known families of three generations with it; and it is as frequently a natural condition as a diseased enlargement of the organ. Disease of the heart, however, will undoubtedly herald its presence by these fissures on the tongue in persons with whom enlargement of the organ is *not* hereditary; and a knowledge of this fact may serve to guide us in detecting disease, where we have reason to suspect its existence.

In the case of hereditary enlarged heart these appearances of the tongue are invariably present. Where they have been induced by disease, as by acute rheumatism, for instance, they will generally subside or disappear, though not always, when once induced. In the natural state, they seem to mark the character of the individual; as, for instance, a man will be kind when he has a large heart:—but where these marks have been the result of disease, and the enlargement continues, this by no means implies, that the feelings accompanying this hereditary condition have been set up by disease. It is very necessary, therefore, by a just observation, to distinguish between the two actions. It is, indeed, only by careful observation of this singular appearance of the tongue, and by careful induction from the facts therewith connected, that we are able properly to illustrate the two distinguishing points.

Those who have that condition of tongue which indicates largeness of heart from disease, may have it in three ways: either from the cavities and their walls being large, which is called *simple dilatation;* or, secondly, from having thick walls and large cavities as well; or, thirdly, from general enlargement of the organ; and in either of these cases they will be subject to pains about the body resembling rheumatism, for which they are often erroneously treated, though the state of the secretions and the real condition of the heart give no warrant for this very common mistake in diagnosis. These pains, in short, have no connexion whatever with rheumatism; and I may here observe, that I have frequently noticed pains of a similar character aping rheumatism to accompany other organic diseases, and as frequently to deceive the unwary and thoughtless, owing to their neglect or inability to form a correct diagnosis.

Disease, also, exerts great power in altering both the shape and size of the tongue. In the congestive or non-inflammatory condition of the system (as in dyspepsia), it is large, thick, and wide, as well as very flabby, and often takes the impression of the lower teeth, as it lies on the floor of the mouth. On the other hand, in fevers and inflammations it is contracted, small, firm, and pointed. The rapidity, also, with which the tongue will change its shape, size, and appearance, fully bears out the laws of the approach, presence, and consecutiveness of disease, as I shall have occasion to explain in another place. The ready detection of these phenomena more than any thing else puts the observer immediately on his guard; for they inform him of the insidious march of some serious disease, which, at its commencement, perhaps, might have been immediately controlled. He knows, and can anticipate this, too, even before the patient is at all aware himself, from any feelings of his own, that such important changes, involving the very issues of life and death, are about to take place.

The Glossologist—he, I mean, who is so in the true meaning and acceptation of the term—recognises in these important changes the laws of the consecutiveness of disease, as well as the course which inflammations take when they attack the mucous membranes, or the more deeply seated serous membranes, in which latter case they are always dangerous, and, if possible, to be prevented. He knows, also, that certain organs may become the seats of disease in preference to others, by a law of election that chooses one part rather than another, thus forming the distinctive maladies of the system. In no cases is this so distinctly seen as after accidents, or the results of accidents or operations of the lower extremities, many of which latter prove fatal from the circumstance of certain laws not being understood or capable of being discovered by any other form of diagnosis. Nay, I will go further, and say that even when symptoms are actually present that threaten life in a few hours, all other forms of diagnosis are very doubtful and unsafe.

There are other appearances of the tongue, likewise, that form valuable indices of disease, especially to the reflective medical practitioner, if only he will condescend to make Glossology a part of his study. I have already, however, explained the subject, in its broad general features, to an extent quite sufficient for the guidance of the non-medical public; the more especially as I shall have occasion in subseqent chapters constantly to notice the ever varying appearances of this organ.

I shall conclude with a few observations on the general bearings and results connected with Glossology as a science.

The ability of distinguishing diseases (which are merely the effects of hidden causes), of classifying them, of tracing them up to their causes, of ascertaining how exciting causes act on proximate or latent causes, with a view of applying relief to human suffering, can have resulted only from the exercise of cultivated reason. Whatever, therefore, aids the powers of diagnosis, cannot but conduce to promote the good which it is the physician's aim to effect upon his patient. In skilful hands, time saved in discovering disease generally abridges and diminishes suffering—in many cases saves even life itself; while, on the other hand, time lost in forming a diagnosis can never be regained and will often prove fatal to the patient.

Now admitting, as we must, that the tongue is in direct connexion, either by means of nerves or blood-vessels, with the brain, the lungs, and the digestive apparatus, it were absurd to suppose, that Nature would be confused and undecided in her arrangements, and mix up these connexions in an unwise manner. I was satisfied of this from the first commencement of my observations; and my inquiry was especially directed to those different connexions with the view of discovering the relative situation on the tongue to each organ or union of organs in the human system; and I ere very long, yet by patient induction, found out that certain appearances—colorations or discolorations we may call them—might be made to serve as our certain guides to the condition of certain organs, and thus furnish the ground for diagnosis in cases where they are diseased.

I found, in fact, by long-continued observations, characteristic appearances on the tongue in well-marked diseases; which appearances, when I was fully satisfied with them, I mapped out in the manner described in an earlier part of the chapter; and in the search after causes for these effects, I found that anatomy bore out the truth of the discovery, which, accordingly, I no longer hesitated to lay before the profession, as I now lay it before the public.

Let me remark, in addition, that a thorough knowledge of Glossology will often detect deception, or feigned disease; for, even when the tongue *speaks not*, it will *show* the truth. The sick tale is too frequently an untrue one, and those who have had most practice are best acquainted with this fact. If the art that I advocate, then, has the power of uncloaking deceit and enabling the physician to grapple at favourable odds with a dishonest patient, I maintain this to be a step gained in the progress of medical science.

Another remark that I have to make is, that the tongue occasionally presents very similar appearances in really different disorders. It is in the situation of these various coatings and furrings that the difference lies, as I have already endeavoured to show. Medicine and diet have in some cases so changed the aspect of the tongue within a few hours, as actually to balk the medical man in forming any sure diagnosis therefrom. A merely dyspeptic person, again, may present a tongue more foul and coated than the patient with a severe disorder. It is owing, I believe, to this apparent fickleness and inconsistency, that the tongue has not received from the profession that attention which it deserves; and I used formerly to hear hospital teachers tell their classes, the tongue was so fallacious that they must not take it as their guide. Too few pains, if any at all, have been taken to ascertain the places or parts that foul, in some diseases more especially, or cleanse in others, and by which these cleansings and foulings are regulated; this, in fact, I apprehend to be the reason why so little advance has been made in the great work of forming a true philosophy of disease.

When the phenomena of the tongue are properly studied and understood, it will most assuredly be found that every altered stage of the system, from the least to the greatest ills that flesh is heir to—from the simple dyspepsia to the corresponding congestion of organs, and from thence again to the changes that finally produce fever and inflammation—will be found marked in unmistakable characters on different parts of the tongue. The more we look at the tongue and examine the many appearances it presents, with the view of discovering the state of the system or the seat of any disease by which it may be afflicted, the clearer will be our knowledge of the definite fixed laws by which our existence is regulated.

In fine, nothing short of a thorough acquaintance with Glossology can give the medical man the faculty he so much requires, and which is of such vast importance to the patient, of at once and unfailingly ascertaining the condition of organs; —whether, on the one hand, they be only functionally disturbed, or, on the other, have gone a step further and become organically diseased. It is this knowledge alone, that can enable the practitioner to predicate with any safety as to the probability of the patient's recovery, or, under less happy circumstances, indicate to him the necessity of forewarning the sufferer to prepare for that final change, which all that is mortal must one day undergo. In short, the physician's knowledge thus gained will assuredly relieve him from the reproach to which our profession is too open, either of predicting fatal results when the patient recovers, or of holding out delusive hopes to the last, which are falsified by his death.

So much reliance can be placed on the tongue, as an organ of diagnosis, that I hesitate not in alleging that I could examine the condition of a regiment or ship's crew, in the briefest space of time, without asking any questions of the men, and describe their conditions better than the medical officers attached to either, who have no knowledge of this science. This is most important to troops going on foreign service;—as those who may have symptoms of disease, or would probably be affected by the voyage or the climate of their destination, could be retained on home-service at the depôt,—thus saving the expense of transport, as well as the loss of the men's service. As respects even a whole army, wherever located, the expert Glossologist would be enabled to decide on the hygienic condition—favourable or otherwise—of the localities of an encampment, and thus influence in a most important manner the change of quarters of regiments. In fact, Glossology has yet to show its great capabilities of application to many purposes hitherto quite unconsidered.

# CHAPTER IV.

## COMPARATIVE AMOUNT OF DISEASE AS COMPARED WITH HEALTH, AND THE COMPARATIVE DISEASES OF THE SEXES.

Real disease as treated by the legitimate practitioner and by quacks—Imaginary disease and amateur physicking—Red-tapeism of the profession leads to quackery—Disease the exception, health the rule of the community—Estimated amount of disease, and of those who treat it—Calculated sources of disease—Men more careful in their habits than women—The stomach the primary organic source of health and disease—Comparative diseases of the sexes; tabular statement—Stomach and kidney diseases more frequent in man than woman—Injury done by aperients, especially to women—Dr. Paris's opinion on purgatives and mercurials—Woman's pernicious fondness for domestic physicking—Description of the intestines and their functions—Hypochondria and hysterics, with their causes—Woman's neglect of her physical health, and its consequences—Want of exercise, its evil results—Organic and functional diseases—Rheumatism and gout, man's complaint; rheumatic gout, that of woman—Kidney diseases in man; their causes—Disease of the heart in man and woman—Diseases of the brain and large intestines—Lung diseases—Bilious ailments so called, chiefly chymous—General conclusions.

As disease is incidental to the human body, we are naturally led to speculate what its probable per-centage may be, as compared with the health of the whole community,—as, also, what amount of it may be considered absolutely to require scientific treatment for its removal. Now, that alone can be considered as real disease, which falls under the treatment of regularly educated and legitimate professors of medicine, such as the physician, surgeon, and general practitioner, whether these practise on all diseases in general, or on certain specific ones to which they have devoted their exclusive attention. Nevertheless, it cannot be denied that much real disease is constantly tampered with by chemists and druggists, herbalists, homœopathists, and a host of other quacks and charlatans of all denominations. These, also, considerably swell the list of those employed in the treatment of imaginary disease, nor can we doubt that, while they introduce an excessive amount of very pernicious amateur physickings, they reap for themselves a rich harvest from the credulity of the public.

Amateur physicking, I may observe, is grounded on small amounts of knowledge and the merest smatterings of science, mixed up with peculiar and false notions, clever faddles of persons seeming to have nothing else to do but give opinions on their friends' and neighbours' diseases, and recommend the prescriptions of certain high medical authorities and celebrities given at some former time, for *just the same sort of complaint*, to his or somebody else's cousin's wife's sister, or some other distant connexion. This amateur physicking, moreover, was never more largely practised than in the present day, and these amateurs, with the quacks, constitute the great opponents to the scientific treatment of disease.

We need not go back to the days of "pigtails and gold-headed canes," when those self-important worthies once had all the science and quackery of the profession combined in their own hands; but we will take a class of a later period, though now fast dying out, who existed just previous to the time when modern chemistry began to make its great advances; and we shall find that their common sense was even then suggesting to them, that there was not, after all, so much real disease in the world as had heretofore been supposed:—and, meanwhile, their interests told them also that their patients had quite enough vitality to stand a good bleeding in more senses than one.

The same system is still followed by their juniors of the present day, as far as regards the latter point; and, certainly, the majority of them have far less claim to science and common sense than to a strict and slavish observation of the routine and red-tapeism of their calling, or the current amount of knowledge, true or false, of their own day. To these persons, who, I repeat, form a very large body—nine-tenths, perhaps, of the whole profession—the public are largely indebted, not so much for the good they derive from them, as for being practically taught how much physic they might take without being much better or worse for it. Hence was it, that the million, who are pretty good judges of their own interests, took their complaints into their own hands, and resorted to the shops of the pill compounders, who provided them with simple, inert "patents," most of which do neither great good nor great harm, and this practice has been made still more general by the recent introduction of homœopathy. And what have the public thus accidentally learnt? Why, this—that *they have really much less actual disease about them than they had imagined!*

Thus, therefore, as regards either those who will not take any physic at all, but leave everything to Nature, and change of air or diet; or, again, those who take the inert nothings of our modern quack pill-vendors; or those, thirdly, whose means enable them to enter hydropathic hotels, and there live merrily and rationally; or those who positively believe in and resort to the trickeries of mesmerism; or those, lastly, who consult the homœopathist, and physic themselves with globules,

> Not half so big as a round little worm
> Prick'd from the lazy finger of a maid:—

as regards all these, and such-like persons, I really have no apology to offer for telling them the result of my own observations, which is, that it is extremely fortunate for them that there is comparatively very little real disease at any time present in the community; though every one, no doubt, will have his or her turn in the course of a lifetime.

Without, therefore, offering any statistics or pretensions thereto, I shall simply place before the reader my own reflections, from which he may draw his conclusions in any way he pleases. All, however, that, in my opinion, can be said on the opposite side of the question to that taken by myself is, that as health carries on the duties of the world, if we had sickness and disease to the amount sometimes imagined, the human race, instead of thriving and increasing, would soon become extinct, and the constant demands that business and cares of all kinds make on its energies would ere long not be satisfied, inasmuch as they assuredly cannot be furnished by sickness or disease—by nothing, indeed, short of positive health.

Now, reckoning the population of Great Britain at 21,000,000 (which it was within a few thousands at the census of 1851), and taking five to every 2000 persons who prescribe for them, both legitimately and otherwise, we shall find that 50,000 persons are always thus employed. Nevertheless, as health is a natural, and disease an unnatural, or abnormal, state, we have still to consider the per-centage of persons always under treatment, as compared with the entire population. This I set down at three per cent.: so that 600,000 persons are always employing 50,000 doctors, including druggists, herbalists, quacks, &c. &c., to physic them!

Our next question will be, how many out of the above 600,000 always under medical treatment are really ill;—and if so, what proportion of patients are so from natural causes and accidents; how many from their own excesses, vices, and immoralities; and, thirdly, how many from sheer drug-diseases, or else from being made worse instead of better by the mere administration of drugs? These proportions are shown in the following table:

| | |
|---|---|
| From natural causes or accidents, 25 per cent. or.................. | 150,000 |
| From excesses of living and immoralities, 40 ditto, or............ | 240,000 |
| From drug-diseases, or complaints aggravated thereby, 35 ditto, or | 210,000 |
| | 600,000 |

Now, men are generally more careful in their habits than women; whilst women, who should be most so, are very thoughtless. There seems, in fact, to be a great inconsistency in the character of the latter; for they are at one time over fastidious and careful of themselves, which makes their opposite error of greater carelessness tell all the more powerfully against them. There is no doubt that men have the advantage over the opposite sex in suffering less acute diseases, or such as entail longer continuance. Divine as well as human laws predispose the latter to diseases from which men are exempt. Still, both are subject to the same laws of health; and we must, therefore, take the laws of the primary diseases alone in the system, as a starting-point affecting both, according to habits and circumstances. Considering, therefore, that the laws of health and disease which I have propounded operate in the same manner on both sexes alike, we have yet to consider how far the differences in the sexes, and their duties, habits, and occupations, make up the sum of their comparative diseases.

This naturally brings me to the consideration of the leading diseases, as they affect each sex in comparison with the other, or, in other words, the ratio that diseases in the one bear to those in the other, whether they be derived from organic sources, or are diseases of the organs themselves, or simply of their functions. Under the head of diseases of the stomach (which is the primary organ whereby everything is taken into the system, both of diet and medicine, for the processes of digestion), I include all the fevers; for in no disease to which the body is liable does any other organ bear so large a share:—indeed the stomach influences every other organ, whether healthy or diseased, and every other organ, either in its healthy or diseased actions, influences it. Diseases of the large intestines, for instance, exert an influence on the brain; yet disease in neither can take place without the stomach being more or less affected. Poisonous malaria, too, may be absorbed by the air-tubes or lungs, and so affect the blood, which again exercises a direct influence on the nervous system. Diseases of the kidneys, too, act powerfully on the serous membranes. Biliary derangements again affect the character of the nourishing fluids, and consequently whatever is taken into the system. Yet, in every one of these actions the stomach is a large participator; for by that important organ every one of the others is put to rights.

The functional disturbances of the uterine system of the female, as well as her excesses and neglects, form the bases of much of her liability to disease; while with regard to the male, to his grosser irregularities and vices may be traced the great causes of *his* liabilities to disease. Setting these aside, and taking their mutual liabilities into consideration, I have found that they will approach nearly to the proportions given in the following tabular statement:

| | MAN. | WOMAN. |
|---|---|---|
| DISEASES, from the stomach affecting the primary processes of digestion | 53 per cent. | 50 per cent. |
| Diseases, biliary, affecting the *secondary* processes of digestion | 10 " | 10 " |
| Diseases of the lungs | 10 " | 10 " |
| Diseases of the kidneys | 9 " | 5 " |
| Diseases from mal-appropriation of food in the small intestines | 5 " | 5 " |
| Diseases of the nervous system | 3 " | 7 " |
| Diseases of the heart | 3 " | 5 " |
| " " organic | 1 | 1 |
| " " functional | 2 | 4 |
| Diseases of the head | 2 " | 3 " |
| Diseases of the large intestines | 5 " | 5 " |
| | 100 " | 100 " |

It is hence apparent that man suffers more in the stomach, or primary diseases, and from kidney diseases than woman, and woman more than man in nervous, heart, head, and large intestine diseases. In perusing the above average table of disease, my readers will no doubt be startled at the statement, that the liver, heart, head, and large intestine diseases exhibit so small a per-centage compared with those of the stomach,—especially when I have drawn their attention to the notion so universal, of all the world being *bilious*, and to the fact of every conceivable and inconceivable complaint being attributed to the liver; when I state, too, that every one suffers more or less from what is so commonly, but foolishly, miscalled *heartburn*, and woman more than man from palpitation of that organ, and that headaches are so common a complaint. When you remember, too, that the large intestines are so constantly the parts alone considered and acted on by medicines, you may consider my deductions somewhat inconsistent. But if the whole world will consent to remain under one great rule—that of medical red-tapeism, and if men will continue treading in one perpetual round, constantly multiplying the same routine of ideas, merely dressing them afresh in the new garb of language, surely I am not to be blamed for thinking differently.

A man is generally more careful of himself, more regular in his habits, and more attentive to the regular action of his bowels as to time, than a woman. The truth is that man obeys his natural instinct, while a woman tries to make it obey *her*, and puts off this very necessary duty to another time, thinking that presently will do; the result of which is, that the instinctive desire goes off, as she seldom courts one specific time for this great act as man does, her time being her own. In the majority of cases all hours of the twenty-four are hers, and she never obeys this function, except when she is obliged.

It is the very inattention to this, which begets the first irregularity, and thence leads to the prevailing passion of taking aperients, than which nothing is more hurtful to the female constitution. They weaken and upset woman's whole machinery, tend to bring on actions which should be in abeyance, and increase them when they are already in excess. Functions peculiar only to them such medicines are always interfering with; while the powers that should be gathered and harvested in the system by natural laws are weakened and depressed, thus either keeping Nature's garners overloaded, or depriving them of their contents to the last grain. It may strike many with surprise, that I have placed the average of large intestine diseases at so low a per-centage; but on this point I have nothing more to say than that my business is solely to observe, not alter or modify Nature's laws.

The public, more particularly the female portion of it, know but one disease, or something connected with the liver, and but two remedies, which are mercury and aperients, both dedicated to the same purpose; and hence is it that in the female there is a greater per-centage of head and large intestine disturbance than in the male. Nothing occurs to her, in short, in her peculiar folly of private physicking, but the one notion that the bowels must be acted upon.

Alas! there are but too few golden rules in our scientific works, which, of a truth, contain in bulk more science than common sense, and more learning than philosophy; but here, at all events, is a real grain of wheat. In Dr. Paris's "Pharmacologia" occurs the following passage, which should be treasured by everybody who values his own health, and would adopt due means for securing it. Thus says the late learned President of the London College of Physicians: "If it be advantageous in many cases to quicken the action of the intestines, so it is equally important in particular conditions of the system to retard and diminish it. This, moreover, is a point of practice to which the physician has not hitherto directed sufficient attention. If there be a circumstance in the treatment of disease, which above every other is left to the government of a blind routine, it is the management of the bowels. Let the complaint be what it may, let the temperament, strength, or circumstances of the patient be ever so different, the first question of the practitioner relates to the bowels; and should they not have acted during the previous twenty-four hours, away he flies to the aid of aloes, colocynth, senna, calomel, &c., to force the reluctant canal to pour forth its contents. Did it never occur to the pathologist, that Nature may upon some occasions wisely retard that operation which he is so anxious to provoke? May not the alimentary organs in certain states of weakness require time for the due performance of their functions? I can confidently answer this question in the affirmative, not from any reliance upon a favourite theory, but from a conviction forced upon me by practical experience. I am perfectly convinced that cases of marasmus (wasting), which might have been cured, had Nature been left to her own operations, have been brought to a final termination by the officiousness of the practitioner, and by the unrelenting use of purgatives, sweeping away from the primæ viæ the elements of nutrition, before Nature has had time to combine and absorb them."

Man, however, has made an arbitrary rule on the principle of Procrustes' bed—that those who are too short must be stretched, and those who are too long must be cut down to fit it; and this rule is, that everybody's bowels must be opened once in twenty-four hours. I have referred to this in the chapter on Cholera, as well also as in that on Fevers; in which cases, purging either naturally or artificially produces delirium and death as a sequence. I will now mention it as a natural law; and I have no hesitation in saying, that not more than fifteen per cent. of the female sex get a regular action of the bowels naturally once in twenty-four hours. Many may work as hard as the male, as we know they do, physically; but they never have the same capacity of stomach as the male, and they seem to have a smaller calibre of intestine generally; the consequence of which is that they want more time to "combine and absorb" what they have taken.

Many writers have spoken of the peculiar dispositions of families to long retentions in the bowels. There are some habits, especially amongst females, where health entirely depends on the bowels being confined for a few days or a week, or even more; and when this habit is changed, owing to some natural cause, such as change of air, diet, &c., bringing on a daily action as the consequence, the result often is that they change from a plump and healthy state of the body, and great elasticity of mind and spirits, into a thin, emaciated condition, attended with low and depressed spirits; while, on the other hand, should they recover, and their functions be perfectly restored as to deferred time, they gradually reascend the scale, both as to a healthy and plump condition of body, and an increased vigour and elasticity of mind. Where now are your theories, ye theorists, interferers with Nature's ordinances? As well might ye reason to reduce that system which not only has, but requires, the daily action to the retentive one, at the risk of inflammation of the brain, as to insist on the rigid fulfilment of their law by a daily forcing of the bowels, at the risk of marasmus or a gradual wasting of all the powers.

In many pleasing conversations I have had with a lately deceased naturalist, he on one occasion, when our friendly chat turned on this point, fully corroborated my observations on the large intestines of the human family by comparison with those of fishes and birds; for he told me that he had never opened the large intestine (or colon) of a healthy fish or bird that he found it entirely empty, but that it always bore evident signs of the designed quantity of fœcal matter therein having been lately discharged.

Let those who pursue the pernicious and health-destroying practice of constantly taking aperients reflect on these few remarks. When the fœcal matter is being collected in the system from the residua of the aliment taken, it is received at the termination of the small intestines into a sac, called the head of the colon, situated just above the right groin, while an ascending portion of this intestine rises up as high as the stomach, a transverse portion lying under the stomach and a descending portion going down on the left side as far as the back of the hip-bone, when it forms a portion in shape like the letter S, and below this is the straight gut, which is the rectum. Now recollect that the whole of this intestine is, or ought to be, kept *moderately full*, with the atoms loosely pressing on each other, not stuffed together too firmly.

The man of regular habits, in this respect, receives an intimation of a required action on the bowels, and so gets rid of that which is in the last short staight portion, the rectum, also that which is contained in the letter S, and probably, also, a portion of that above it; the duty once performed he is comfortable. In the course of the next twenty-four hours the fœcal matter, still accumulating gradually, pushes the mass on through the ascending, transverse, and descending portions of the same gut, which will be refilled at its proper stated time. He does no violence to the first processes and laws, and only sparingly, at long intervals, requires a gentle laxative, when the whole of the large intestines may be emptied; and, probably, the next day he may miss his accustomed action from this very fact, the following finding him all "right again."

Now, what is the case with the female—her who is ever commanding these actions and not obeying them? At a time when the bowels are willing to act, she repudiates them, thus acting contrary to Nature, which would have relieved them; and the consequence is, that inspissation or thickening of the fœcal matter ensues, the more fluid portions being absorbed and the mass becoming hardened, or what is termed *constipated*, when nothing will serve the lady's purpose but taking aperients, or some of the usual quack or antibilious pills; or else, considering herself *bilious*, she will take blue-pill. Well, what is the consequence of this perpetually emptying the whole of the large intestines? It is this: "sweeping away the elements of nutrition, before Nature has had time to combine and absorb them."

Even men who are perpetually in the habit of taking medicine of this character are never well long together, and having laid the foundation of a bad habit, attribute all their ailments to the liver, which, of course, begets the habit of taking blue-pill, to which, indeed, they may date their lowness of spirits and their becoming hipped and hypochondriacal. Yet, when once this peculiar affection seizes them, they listen with greedy ears to every one, who has anything to offer in the way of advice, as to the rules they should follow, what medicines they should take; and thus do they exhaust the round of legitimate practice, until at last, failing in the desired end, yet not greatly impaired in their natural powers, they get tired and throw themselves into the arms of charlatans who promise everything, but nevertheless destroy that which they found still standing; and in a short time they are lost beyond all art or science to recover them. Having thus paid more dearly for a worse article, they linger out in pain their miserable existence, which has thus been made shorter than it would have been, and are placed, in fact, under more distressing circumstances than if they had followed a course more wisely directed. The per-centage, however, of such miserable beings is fortunately small.

On the other hand, the opposite sex have far more numerous causes for a similar class of disorders called hypochondriac, which, in women, are known as *hysterical;* for their numbers range above one hundred and thirty per cent. above those of men. Thoughtlessness in early life at the commencement of the great changes that take place in their system; a total want of care at particular times; a culpable neglect of the most important functions of their whole economy, whenever gaiety, amusement, or pleasure, stands between their gratification and their duty to themselves as regards the preservation of health; carelessness of their bowels; anxiety for appearance in dress, rather than for the comfort it should impart to them; a wayward feeling that youth will triumph over every threatened evil; and, lastly, a laughing disregard of the advice of older heads and wiser friends; — these are the unfailing characteristics of these unhappy young persons; nor will they ever yield one whit, until they are obliged to do so by the frequent recurrence of palpitation of the heart, and from splitting headaches on the top of the head, that seldom leave them; while their looks pale and wan, distressed countenances, and acute pains in the side, prove the existence of great functional disturbance. The least excitement (and that is easily raised) soon produces an hysterical paroxysm of tears, cries, and laughter; food is rejected, for they cannot take it, as all their powers of appropriation are upset:—their diet, therefore, becomes from habit less and less of a nourishing character, and exercise gives pain both to the limbs and side; yet to the surprise of friends, when a healthy walk of a mile in the morning in the fresh open air is more than they can possibly undertake, yet in the evening they can traverse miles of a drawing-room floor in the giddy waltz or polka; and when the upright position cannot be endured for more than a few minutes in the day, ten or twenty minutes' giddy whirl, with great exertion to boot, is thought nothing of. In short, inconsistency in everything marks this high functional disturbance.

Many, it is true, get over it, and, changing their habits, make tolerably healthy mothers; but if their pale or sallow faces should have attracted the observation of the mercurialist, this appearance is ascribed, in the most approved cuckoo note, to a *sluggish liver*, a notion which their mothers encourage, their best friends believe, and their doctor too willingly and confidently enjoins and prescribes for. Hence, one of two things is the result: either in opposition to all her rules, Nature acts both against disease and art, and restores the system in her own beautiful and effective way, or else, being unable to do so, she succumbs to the treatment, the result of which is a life of misery and suffering to the unhappy patient, who too often fades like a flower from the rough usage of an inclement atmosphere. How can we wonder, then, that the heart, the head, the large intestines, and the nervous system, suffer more in women than the same organs in man?

Inattention to exercise is another feature in such cases; for the weather must be always of the finest, when that is to be taken, instead of casing the frame to meet its roughest changes; and thus this most important duty for the promotion of health, so far from being persisted in, is positively neglected. Yet these fair specimens of Nature's handicraft, not being exempt from Nature's influences, should meet her in all her changes, as do all her other works; if they did so, they would often be better for some of her rougher usages. Surely, if the hardier frame of man is invigorated by wind, and rain, and storm, as well as by sunshine, the elements, combined in their milder moods, may well contribute to fortify the weaker frames of the opposite sex. The reason for this is plain: that greater exertion is introduced into all the bodily powers during these atmospheric changes, and the fresh and healthy looks of the latter cast into the shade the pale countenances and listless habits of those who remain constantly at home.

In the present day, nervous diseases in the female constitute a large proportion of the artificial diseases incident to a highly civilised state of society, where art, not Nature, reigns despotically; and they consequently give the greater average number of cases to the physician, especially in great towns or cities. These, however, must take their chance; for the million cannot be expected to understand or cope with that which the wisest amongst us know so little about. No;—they must be content to follow the simplest laws, an observance of which will often do more towards restoring the general health than by imitating the errors, into which the more highly educated fall, of too much particularising complaints, instead of reasoning on general principles and treating them accordingly.

Man, I repeat, pursues by habit those things which tend to health; woman neglects or opposes them. Man allows no bad physical habits to get the better of him: he may, it is true, indulge in bad habits morally (that is another question); but if the body itself suffers from them, he follows remedial measures, until they are conquered. Woman, on the contrary, contracts a bad habit and neglects it, until it reaches an alarming height: her excuse then is, "she did not think," "she was not aware of it," she, of all others, who ought to know most of the "stitch in time." Man has always time to attend to these matters; woman never has. Man, who has much to do, makes time, while woman never does, because she has less of importance to think of, and too many trifles to attract her attention. Never was more important advice given to the female than to beware of allowing any functional disturbance to go uncared for;—inasmuch as such neglect may embitter a whole life and even abridge its duration.

Functional disorders, by which I mean want of regularity in the joint performance of organs while in their integrity, do not destroy life, whilst organic diseases, on the other hand, are only to be soothed. Functional disorders are always under the influence of cure, organic diseases never. Functional disturbance should be mildly, kindly, and judiciously treated, never with violence; for remember, if you attempt to open a Geneva watch with a crowbar, you run great risk of breaking the works. Above all, avoid mercurials, and upon this principle encourage and induce actions that have been deficient, and trace their mutual dependence one on another. Acidity on the stomach will frequently produce a costiveness of the bowels, and even want of action of the liver, for which complaint a little alkali combined with bark or sal-volatile will often set everything to rights; for by the neutralising of the acid by the alkali in the stomach, a neutral salt is carried onward into the lower bowels, and produces all the effect required.

Man is more subject to rheumatism than woman, as this disorder arises principally from an acid condition of the system, originating most frequently from the state of the stomach, the morbid acidity of which is in excess over that of the woman. It is in these states, that he is more exposed to injury from atmospheric influences. He has also more true gout than woman, for the same reasons; whilst woman, from the many opposing elements and causes of disease in her system, will get these two disorders intermixed, and become the subject of rheumatic gout more frequently than man; for in man a distinctiveness as respects these disorders exists more than in woman.

Man is more subject to diseases of the kidneys than woman, for the very reason that he is more subject to the acid diseases of rheumatism and gout, and the kidneys are acted on in excess, unless perspiration relieves them. Besides, his early immoralities, and his greater irregularities and excesses in the use and abuse of alcoholic drinks, expose him particularly to the attacks of these diseases.

Singular as it may appear, while man has organic diseases of the heart more frequently than woman, woman's heart is oftener *functionally* disturbed. Could this even not be proved, yet our reasoning would lead to these conclusions: the very influence of all the primary diseases on man's powers, and all his excesses and immoral habits combined, and the constant depressed and excited emotions of the mind, as well as the effect upon the circulating vessels and the heart itself, must naturally lead to organic disease; while the woman, on the other hand, being more exempt from these exciting causes, more frequently suffers from disturbed functions of that organ.

Her mind is more sensitive, owing to the more delicate structure of her nervous system; again, the irregularities incidental to her peculiar constitution, its excesses and deficiencies, lead to these disturbances; nay, often at her labours, what losses will she sometimes suffer, which time only can restore! Nature must be supported in every part; and if there be only half as much nourishing property left in her blood, the heart must supply at two strokes what it could not do in one, so that the system gets the revivifying current oftener at the expense of the heart's increased action. The consequence is, that we find that organ in woman oftener functionally than organically diseased.

Man, on the other hand, will have thickening of the walls (hypertrophy), or thinning of the walls (dilatation), or enlargement of the heart more frequently than woman. Why? Because his exertions are greater, and his physical powers consequently more severely tried.

With respect to head and large intestine disease, woman has a greater per-centage than man; this results from her peculiar constitutional disturbances, owing to which she suffers greatly from headache at the top (vertex headache), from which man seldom or never suffers. Disturbance of the bowels I have already spoken of; and though I admit that there are often admissible causes and times, from Divine and human institutions, which require artificial attention to the bowels, I yet maintain that in either man or woman, but especially the latter, powerful actions on the bowels are always to be avoided as a general rule. In order to assure yourself of this, calculate the amount of aliment taken into the system, what in reason is likely to be absorbed for its support, and what should come away in urine, perspiration, or solid matter; and you may hence judge, if it be necessary to act upon them artificially or not.

In diseases of the lungs I have found a fair equality between the two sexes; though organic disease is more frequent in the female, functional disturbance in the male. Although the female may earlier surrender to the disease on account of her weaker frame, the male only lasts a little longer on account of stronger powers of resistance; yet he, too, dies of the same diseases when a little older. As it may appear that young females are oftener the victims of lung diseases than young males, this can only be considered as the effect of their numbers being rather in excess as regards the general population; my calculations and observations are upon the supposition of equal numbers.

Of the real diseases in the biliary portion of the system again, the numbers are equal in each; and the small per-centage of these will perhaps surprise some of my readers, who have been used to consider themselves as always *so very bilious*. This, however, is a myth and a prejudice, of which you will soon disabuse yourselves, especially if you avoid calomel and blue-pill; and as you cannot get rid of the idea all at once, and cannot tell what can be the matter with you, unless you are bilious, —of the meaning of which you are really as ignorant, except as a household word, as you are of being *chymous*, which means some morbid affection of the mass called chyme, the first product of the matter digested in the stomach—and this, in fact, is much more likely to be the real cause of your ailment, instead of the poor liver;—so change the name, and be in future "*chymous*" instead of "*bilious*." You will then soon discover that you never had so much the matter with the liver as you thought; nor would the liver be so much blamed as it has been the *fashion* now for a long time to do, whatever be the ailment of the patient. You will thus see, how much depends on a little reflection as to the chance of slight attacks of indigestion and trivial departures from a healthy state being aggravated by false ideas respecting their causes, and how soon these may be made worse rather than better by drugs taken from a general belief in popular fallacies. It is this condition that the homœopathists thrive upon; for, under ordinary circumstances, they simply regulate diet, and give but little or no medicine. Still, the public imagine that the globules do the good; but herein lies the error: for with a little resolution they might have effected the same ends for themselves. For want of that resolution, however, they pay these charlatans for persuading, assuring, hoaxing, and cajoling them! Nevertheless, after all, the practice is not so bad for them:—for Nature having done the business, the patients, at any rate, avoid the drug-diseases, that would assuredly follow the allopathists' mercurials and purgatives;—which, by the way, the public are ever ready to take, and do take, on their own responsibility, by purchase from the druggists.

I have here shown the comparative diseases of the sexes and organs in a general way, with a few reasons for my conclusions; so that while not called upon to study deeply, you may still receive some solid and trustworthy information for YOUR OWN GUIDANCE.

# CHAPTER V.

## INFANTS, CHILDREN, AND THEIR DISEASES.

All infants are born in health—Gradual action of nascent animals compared to the germination of plants—Embryo life—New membranes; their discovery and uses—Laws of infant life and nutrition—Condition at birth, and growth of infants—Dentition and its attendant ailments—White-gum—Danger of overfeeding infants—Infant fevers—Measles and scarlet fever—Contagion and infection fallacies—General treatment and dieting of children—Precocity in children—Rickets and worms; infantile diseases—Law of gradation from the standard of health in infants—Approach towards puberty—Shedding of milk-teeth and management—Special ailments of girlhood—Nature to be left to her own work—General directions for the management of infants—Importance of attention to first symptoms—Remarks on bathing; the blanket-bath recommended—Use of Glossology as a diagnostic in infant complaints—Thrush and its treatment—Alkaline medicines almost exclusively requisite for infant diseases—Mercurials condemned; emetics recommended—Mode of treating skin-eruptions—Bringing up children by hand.

Infants must always be considered to be in health when born. Prior to this epoch, though animal in nature, they have simply obeyed the law of vegetation, which knows no retrogression, only simple progress in sap and growth, dependent on a parent root. Directly they are launched into the world, however, each one becomes a separate atom, an independent and self-controlling body,—a house, as it were, with a new lease of longer or shorter duration, taken on certain conditions—viz. to repair, uphold, sustain, maintain, purge, cleanse, empty, and otherwise keep in tenantable condition, reasonable wear and tear only excepted; or as a nation or commonwealth, each member of which is bound to obey all laws, charters, and ordinances, and subjected to imposts and restrictions, fines, abuses, possessions, settlements, &c.

In fact, whatever, and however complicated, be the organisations that may present themselves to our notice in natural, social, and political life, or in the universe of nature, where electricity, magnetism, all sorts of mechanical actions, and multitudinous other prime movers are in active operation, all working for the good of man, who is the last and best of all God's works; in each and every one we may find a counterpart in the physical economy of the helpless infant, to whom we are now directing our attention. How then shall we treat it? We must, by attention to its little helpless body, preserve it, and through its little mouth sustain it. The one is a simple mechanical act, the other we know not what. The wildest beast that suckles its whelps, and the savage that hugs and nourishes her offspring, possess a nature and instincts, as maturely and perfectly formed as the highest civilised being. They rear, they raise, they bring up a perfect or imperfect specimen of themselves.

Having thus found that Nature has launched the new-born child into an independent existence, our next inquiry must be, under what conditions this has been done to ensure its safety. In a previous work* I have shown, that during the gradual formation of nascent animals their organs exercise an incipient, though imperfect action, and perform certain functions, though to a limited extent, even before birth. The element of self-existence, in fact, exists at that early period, just as the elements of self-germination exist in plants, the seeds of which have been known for ten, or even twenty centuries, to retain the elements of vitality and become plants, as vigorous as those that graced the gardens of Cheops and Nitocris.

It has been shown by Professor Liebig, that the same laws regulate the life of the seed of a plant as the ovum of an animal, and that the seed contains all the primary elements of vitality, the nitrogenised portions. At first, when the seed is planted, its animalised portions require a full saturation of the *alkaline* properties of the humus or ground; so much so, that the radicle leaves of plants, after incineration, are found more abundant in alkalis than the later leaves, after which the nitrogenised constituents are again in excess throughout the plant. It appears, therefore, that the sustaining vitality of the seed, until it is placed in the ground to germinate, consists in maintaining its animalised or nitrogenised properties in full integrity.

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* "Physiology of the Uterus, Placenta, and Fœtus; with Observations on the Membrana Meconii and Rete Vasculare, newly discovered Structures existing in the Fœtus and Young of Man and Animals." Churchill, New Burlington-street, London.

If Nature is so bountiful to the seeds of its vegetable kingdom, does she overlook the young animal in its vegetative or fœtal life, or its early stage of self-existence? The fœtal life of animals is no more than vegetative, and scarcely more than this for a given time after birth. Nor has Nature been less bountiful to man than to the lower animals, and the seeds of plants. As she seems to work by similarity of laws, man exhibits a combination of all the phenomena of vegetable and animal existence as necessary to his growth and perfection as the paragon of creation.

The hypothesis that I have before advanced to account for the laws of health, is in fact fully borne out in the first condition of plants. The perfect seed which contains within itself the powers of germination, has a large *predominance* of acid constituents—namely, the nitrogen, upon which the *alkaline* humus of the earth with moisture, acts. This nitrogen is its animalised constituent, and is necessary to its second life or resuscitated state.

We cannot imagine that Nature has left the young of man and animals wholly dependent on a precarious external or foreign supply of food, to carry on the vital principle in the earliest stage of their existence; especially, when we consider that by far the greater portion of the human family are in such wretched circumstances, that even necessaries for the parent are wanting. Such a thought would violate the wisdom and justness of her laws. Nature's first law is creation: her second is to maintain what she has created. As long as the seed is kept in the condition of static rest, it contains unimpaired, even for years, those qualities which, when brought forward through the agency of other substances, and by new actions, germinate into a plant. The primary element in the vitality of the seed, the nitrogen, is contained within itself. Now, phenomena nearly allied to this occur in the young of animals and in the infancy of man.

The child and, in fact, the young of every animal is born with the primary element of vitality, the nitrogen, in excess, or, more correctly speaking, with those elements which produce it. These, in the process of conversion into nitrogen, require an excess of alkaline nourishment to act properly upon them. At the maturity of utero-gestation the animal is born, and is born, too, with highly organised and consequently nitrogenised powers, which are to be acted upon by the diet which custom has assigned to babes, and which reason sanctions even without the aid of philosophy; and this diet, in the state in which it is given, is, strictly speaking, of an alkaline character. But in what form do the nitrogenised elements exist in the child? In what shape are they to be found to furnish for a certain length of time elements for respiration, for the repair of waste, which commences from the earliest period of existence, and for the reproduction or increase of organisms? The infant receives oxygen from the air, even before any aliment is given to it, which must act on its own organisms to produce carbonic acid gas from its lungs at every expiration. Combustion must also begin early, in order to generate heat, and heat must have something to act upon. The time at which the mother's milk begins to be secreted varies from the birth to seventy-two hours, and even longer.

"Milk contains only one nitrogenised constituent, known under the name of *caseine;* besides this, its chief ingredients are butter (fat), and sugar of milk."—*Liebig.*

Therefore only a small portion of new animalised matter is furnished to the child; the bulk is a natural supply for the powers of the stomach (increased by heat) to act upon.

"The blood of the young animal, its muscular fibre, cellular tissue, nervous matter, and bones, must have derived their oxygen from the nitrogenised constituents of milk, the *caseine*, for butter and sugar of milk contain no nitrogen."—*Liebig.*

This, however, is not strictly true; for the young animal is born with all these, viz. muscular fibre, cellular tissue, &c.; and consequently has them before it has taken any foreign substance, though there can be no doubt of Nature supplying the means of turning the *caseine* to the increase and support of the organisms mentioned. It must be known, and well known, to those who have had much practice in obstetrics, that it often happens that children take milk which has been eliminated from irregular or imperfect supplies of blood, as well as from impure blood, through illness or debility of their parents, and which has contained but a small portion by analysis of *caseine*, when compared with the absolute quantity required. Yet they still live on: the primary element of vitality is still in force. On what do they depend, supposing, as is sometimes true, that the nitrogenised elements of the milk are deficient, if they have not something within themselves to combine with the non-nitrogenised elements supplied? Nature is too wise to overlook a consequence so vital as the chance of her offspring not obtaining at such critical times the elements which they require to sustain life.

Now, Nature has amply provided for this end certain structures which have their uses both in fœtal life and after birth; and these structures are—" THE MEMBRANA MECONII," or peculiar conditional membrane which envelops the dark blackish first motions of the infant; and " THE RETE VASCULARE," or beautiful network of blood-vessels, held together by a delicate structure, easily lacerable, which lies on and protects the true mucous membrane of the intestines. These two structures in the infant organism I discovered in 1842, and from the work in which they are described I have made the foregoing extracts.

Self-dependence, I maintain, is incident to every animal, owing to the metamorphosis constantly taking place in their structures, and the elements derived therefrom being taken up again into the system, precisely as if they were actually new substances taken by the animal. If I have advanced the theory, that the law of health is sustained by a predominant acid condition of the secretions of the body, and that all diet, except one of direct acids, is of an alkaline nature when first taken, I am supported in this doctrine by looking at and examining this little infant that has just taken upon itself the duties of an independent existence.

Nature, always bountiful, has herself provided the human infant with its first animal vital principles, without which it could not live. It can take neither meat, nor flesh, nor any other animal matter; though without their elementary constituents it could not exist. A minute since it obeyed all the laws of vegetable matter. It could neither eat, nor drink, nor make secretions to be used again, except to a very limited extent. It underwent no waste, no decay. Had it died before birth, life would have been simply withdrawn from its organisation, which would have remained exactly as that life had left them. No diminution would take place.

On the other hand, when once born alive, its structures come immediately under the influence of waste and decay; and on that decay, marvellous as it may seem, its very existence depends, whilst its waste is simply supplied by MILK. In reference to this, and bearing upon the subject of the new structures to explain the first laws of animal life, I may be permitted to quote from my own work on this subject. "If these new structures perform highly important duties during fœtal life, they appear to have equally important uses after the birth. From this period all animals are as dependent on what they make within themselves by the decomposition and appropriation of their own tissues, as on what they take of foreign substances to support life. The action of the oxygen imbibed on the animal tissues constantly consumes them; and these, being in an hourly stage of decomposition, produce carbon, which they breathe, and ammonia, which generates nitrogen, the active and primary agent of their whole vital systems. What is there to interpose between the metamorphosis of existing tissues in the new-born child,—supposing, as we have hitherto done, that there are no such structures as the meconic membrane and rete vasculare?"

Now this is the light in which we are to consider these new structures. Does not waste begin with the first cry of the infant? The moment of birth is the moment for receiving oxygen into its system, and the moment for commencing the decarbonisation of blood in the lungs. The carbon thus instantaneously generated there is expired in its first feeble cry. It has taken no milk, and, consequently, no caseine to add to its organisms, no butter (fat), nor sugar of milk, to make carbon or hydrogen; nor does it require these foreign aids. The oxygen already begins acting on those extensive animal tissues no longer required for their fœtal purposes, viz. the *meconic membrane and rete vasculare*, which are supplied to it by INFINITE WISDOM at its birth, *and in the entire absence of its natural food.*

Thus it is that a child thrives better for the first few days *in the almost entire absence of its natural food.* I have had abundant proofs of this, and am strict in my injunction to nurses not to give a new-born child any nutriment, even if the parents' milk does not come for one, two, or three days. It is not only unnecessary, but hurtful. If they are *not* fed, they sleep long, soundly, and tranquilly, and are quiet, good babes; but if fed, they are wakeful, cross, and fractious. I have had these truly practical observations borne out by several most experienced and observing nurses. "I found," said one, "that my babies were always cross and troublesome at first, and I thought the food I gave them caused wind, until I discovered that it was best not to feed them at all; and ever since that I have always had good children." She of course could not account for this; but it shows she was alive to her calling, and, what is more, had sense enough to depart from old usages and prejudices—a sense which very few of her calling have;—and which is, therefore, highly to be commended as an example.

Children, however, cannot live without food any more than adults. They should be put to the breast after a time, when they are dressed, and the parent is comfortable in bed; because the sucking of the nipple, even when no milk is present, causes them to draw in a greater portion of oxygen, and practises them in deglutition. It serves, also, to stimulate the lacteal glands of the breasts, and to divert the current of blood from the uterus through the abdominal arteries to the mammæ or breasts, and thus relieve the uterus, which no longer requires so large a supply of the vital blood.

I am certainly always best pleased, when the parent's milk does not come till the second or third day, for the reasons I have stated. The oxygen then has time to consume the superficial portions of the *membrana meconii*, whilst the first milk (beautifully and wisely made aperient!) detaches the meconium from its membrane, and assists in its expulsion from the system. The meconic membrane afterwards becomes very pulpy and mucous; the rete vasculare loses its supply of blood, and the milk gradually taken by the child becomes, with the bile, its proper menstruum. The bile penetrates and mixes with both the membranes; the mucus is now formed in abundance, and we see the bright orange and yellow fæces peculiar to infancy.

The decomposition of these new structures goes on very rapidly and regularly, and generates large supplies of carbon, ammonia, and nitrogen. These more acrid and acid constituents, however, are neutralised by the alkaline properties of the new milk, which is very quickly curdled by them, as well as by the alkaline properties of the bile, and a very brisk effervescence takes place. The activity of the bowels of the child is not brought about so much by their muscular action, as by the chemical action of their contents. See a child nursed in the arms with a tight napkin on, and its nates resting on the hand or arm of the nurse, impediments sufficient, one would suppose, to stop the action of the sphincter ani; yet with what power a motion is ejected, even in opposition to this force! During the washing of the child the nurse will have indications of the bowels acting, and will catch the motion in a receiving-vessel; there it is pure and free for examination. Its smell indicates the large amount of decomposed animal matter of which it is composed; while the curdy state of the milk in it, and the innumerable globules of air, show the acid stage and the highly-fermenting process going on. Here, then, the similarity to the first process of vegetation is shown. Diet of a purely alkaline character is required, let it undergo whatever changes it may in the child's system.

Here the humoral pathology continues to bear down all opposition to it. The young animal is, after birth, as well as during fœtal life, supported on humoral principles alone. How can its stomach act on solids? And when it can, what are Nature's indications of the change, but the coming and presence of teeth? Early teething shows early strength of the digestive powers; late teething, a late power of bearing solids in its system. The early months of infancy require the simplest, yet most judicious management. How long the meconic membrane and rete vasculare take to be entirely decomposed and carried off, I am not in a position to determine; the time, no doubt, varies according to the constitution of the child; but this is guided by certain laws. The repair of waste is probably made up by the nitrogenous constituents of the caseine of its parent's milk, on the one hand, and on the other by the greater amount of nitrogenised constituents of its own organisms by the decomposition and appropriation of the meconic membranes and rete vasculare.

The non-nitrogenised constituents of the milk act as a foreign menstruum on the nitrogenised portion of these animal tissues, the product of which is carried out of the system in the form of effete matter. The difference, therefore, in a thriving child, and a poor, thin, atrophous one, appears to me to consist in the power within it, on the one hand, to dissolve its new structures, and free the absorbents, as well as on the power of the absorbents themselves to take up nourishment; while, on the other hand, the retention and undecomposed state of the rete vasculare prevents the absorbents from acting by closing their mouths; for we find some children, in a state of atrophy threatening life, suddenly gaining lost ground, and becoming fat and thriving.

In the management of infants, cleanliness and warmth are the two first great duties to be fulfilled. These offices even the roughest and most savage animals perform instinctively to their offspring. Every part of their bodies is continually subjected to these soft endearments and most necessary processes; for when their tongues have performed the first, they close upon them to yield every possible warmth that their condition requires. What more can the civilised human female do for her offspring but the same; though of course it is performed differently?

Infants, after being washed in warm water, should be well powdered, in order that any moisture or damp from that process, or from wiping, should be absorbed. Their napkins should be changed, as often as they become damp; for all excrementitious deposits are of an acrid nature, and act deleteriously by reddening and excoriating the skin. Warmth, both to infancy and age, is support and nourishment; and it is important to know that the greatest amount of heat or caloric in an infant's body should always be on the surface.

Children are full and plump when born. After the first few days they lose this appearance and apparently shrivel; but after birth, when they have to bear the weight and pressure of the atmosphere, the reverse naturally ensues. The action of the oxygen from the air they breathe assists these changes, whilst the artificial stuffing and contents of their bowels come away. All this necessary internal heat is soon renewed by the action of the warm food given them, and by the judicious application of external warmth; the result being, that the heat once more radiates to the surface, and the infants resume their plumpness. All these natural actions are indispensable, and must be constantly kept up. The milk glands of the mother cannot in their first efforts be supposed to contain elements of nutrition, neither do they; for they are wholly innutritive, and by a wise law of Nature, act at first simply as laxatives.

When these glands, however, increase in their action, the milk begins to assume more and more its true condition and character. It requires very little digestion, and its elements are very rapidly absorbed; so that the amount of heat necessary to assist these actions is comparatively small. Whenever the infant becomes cold or chilled, the heat from its surfaces is driven inwards to the centres, and from being in excess, produces flatulence, spasms, and convulsions. The heat being thus once more reduced to the natural standard restores the natural equilibrium, even without medical agency. This is the first simple law for your guidance. It is a common usage to prescribe castor oil or other aperients to children, as soon as they are born ; but it may be pronounced a barbarous custom, "more honoured in the breach than in the observance." No such thing is necessary.

Infants, again, should not be exposed to excess of light. The lying-in room should be reasonably darkened. I have elsewhere said, that too much light causes weak and sore eyes. True; these little windows to the brain are of no use to infants in their earliest stage of existence, but should rather be considered as organs in abeyance. Yet why should these organs be blinded by dazzling excesses of light, or in any way injured, so as in after years to compel the early use of spectacles ?

After a few short months, the human infant's little troubles begin in reality. Teeth are forming in its gums, which grow like other structures, and come to the surface. In many children the process is performed well and with little or no pain; but in many others it is a fruitful source of many ailments. All bone has its natural covering, without which it cannot grow or be nourished. In many cases, this necessary skin covering the new bone or teeth when in the gums may be tough and rise up along with each tooth, covering its sharp edge, so that the gum itself will swell and enlarge; and the higher the tooth rises, the more the gum will become enlarged and inflamed.

In such cases lancing is necessary ; first, to relieve the part by an incision causing the discharge of a few drops of blood; secondly, to cut the skin that covers the tooth. Lancing, however, is of no service, unless the tooth is touched by the instrument, and the skin divided. As soon as ever this is done, the cut edges recede to their proper part, and the tooth once freed soon pierces upwards through the gum; otherwise many lancings are required, and greater pain entailed on the child. Such repetitions, however, are in fact beneficial ; though it is by some supposed, that the tooth has greater difficulty in penetrating the healed-up incision. If the lancing were repeated fifty times, however, the tooth could more easily get through the cicatrised incision than if the gum itself had never been incised:—but after all, the natural skin of the tooth is still the great hindrance.

The order of appearance for the teeth is as follows: two lower incisor teeth are first cut; then the four upper; then two, one on either side of the lower two first cut; then the four teeth, two top and bottom beyond the future situation of the eye-teeth; and lastly, the eye-teeth themselves, which appear at about the age of eighteen months, and seem to come last of this first series, for the very purpose of playing the part of wedges, and fixing the whole number, top and bottom, firmly in regular shape. Nearly contemporaneous with the appearance of those last mentioned, four others begin to show themselves—two at top and two at bottom—coming sometimes a little before the eye-teeth, sometimes at the same time, and sometimes afterwards.

Irregularity in cutting the teeth frequently occurs under peculiar states and conditions of the system, as well also as to the times of the first cutting any at all—which time may vary from the age of six to fourteen, or sixteen months. A child, nevertheless, may do well with all its first sixteen teeth, and yet have difficulty and some little trouble with the eye-teeth. All this will occur, sometimes with, sometimes without difficulty, inconvenience, or suffering. Now, an infant should bone its teeth, which is the time that the teeth are being formed in the jaw and gum, and cut them always under one or more of the three following conditions. It should slobber, or dribble constantly, or be perpetually puking and rejecting portions of its food for some time after its meals; or else it should be frequently purged or have a loose habit of body; that is, it must either dribble, puke, or purge.

The more the salivary glands are secreting naturally, the easier and more healthy will the process of teething become. Should none of these conditions be present, a train of evils follow sufficiently indicated by the poor little patient's hot skin, feverish condition, sudden starts, constant crying, and pulling and tearing at its little mouth with its hands, wasting from want of sleep, hectic flushes, hot head, jerking and twitches of the limbs, convulsions and fits. In some cases, too, external effects will show themselves in sores and eruptions of the head or about the mouth, often very difficult to be cured.

These last indications, namely, eruptions and sores, will disappear, you may be told, when the child has cut its teeth; but I have elsewhere stated that disease is Nature's effort to cure, and this is an early instance of the fact. These eruptions arise from a suppressed action of the salivary glands and diminished secretion on the mucous surfaces, soon evincing themselves in an acid condition of the blood, which escapes through the pores of the body to the surfaces, and terminates in ichorous skin-diseases. Had these causes been attended to at first, no such loathsome effects would have ensued. Besides, a habit is hereby encouraged in the skin, which is not so easily got rid of; for often, when this has once set in and the teeth are all cut, the filthy skin-disease remains in open defiance. Better far for children, were an excess of purgings, or constant fœtid diarrhœa; for in the first place, they can bear these very well; and in the next, they are more under regulation and control, are more natural, and finally cease, when the irritation in the system that caused them is removed.

My earnest advice, therefore, to every one having the care of infants, or even older children, is, never to allow any disease of the skin to exist a day or an hour without the most zealous vigilance, and never to allow the skin to become an outlet for morbid humours, or deposits from the system. Many have rued the day that they have allowed a skin-eruption full latitude; and most unsound is the philosophy of any adviser, who would intimate that it will go off, as soon as other evils, supposed to be exciting agents, have subsided; for by following such advice, you are trifling with an organ that has its seven or eight millions of outlets, and encouraging that organ, which, as a whole, is the largest in the body, to contract a disease which is always difficult to cure, rather than suffer the existence of other functional disturbances which are easier to manage.

A nursing mother or a wet nurse should be as much as possible free from anxiety; for an anxious, peevish, fretful nurse, or an ill-conditioned or ill-fed one, cannot yield that support through her milk which the infant requires. In short, we "cannot gather grapes of thorns, or figs from thistles." It is said, indeed, that we have to guess much at the disorders of children, because they cannot tell us their ailments. Now I wish to draw your especial attention, first, to the hypothesis with which I started as to the law and cause of health and disease; and secondly, to the condition and appearances of the tongue as your only sure guides to get at all you require to know.

The salivary glands of infants are very large—larger in proportion than in adult life;—and you will see how much they are dependent on what they make, as well as on what they take. They are more largely charged with vital elements than the young of any other animal at their birth, and the milk of the human female is poorer than that of any other animal. You will now see, how beautifully the one balances the other; for if this were not so, infants would get an excess of food greatly above their requirements, as is often shown when they are brought up by hand.

The true balance, in fact, is kept up by the smaller quantity of nourishing matter in the parent's milk and the large quantity of its own vital medium; else, how could the infant bring into play all its animal properties which I alluded to as its simple vegetable growth up to the time of its birth, and why should all its glands and the primary organs engaged in the animal actions of nutrition be so much larger in proportion, and so in proportion of greater activity? Why, in the act of dentition or cutting its teeth, should these be called upon to act almost inordinately for its more perfect and healthy condition, except that Nature acts by a wise and unerring law? As a proof of this, teething is not always completed at the usual time of weaning,—not even until they are eighteen or twenty months old; thus pointing out that when the teeth are late in coming, the food must still be of the fluid kind.

If all the teeth are cut early, the constitution evinces a more ripened condition, and indicates the requirement of more substantial food. The glands now subside both in size and condition. These infants make less themselves of the natural animal matter for their own sustenance, and require more artificial nourishment. In their very first stages of existence they show a predominance of acid in the system, requiring at the same time less heat in the centres, in proportion to what is needful on their surfaces. In such conditions the excess of heat is constantly radiated to the surface through their porous tissues, causing growth of limbs and general development; without which, indeed, they would be stunted and small. This is seen in poor, half-starved, ill-clad infants, and in those whose surfaces are always cold. This may be easily understood.

Again, if the surfaces are not kept warm and the skin made the medium for quick evaporation of heat, the lungs become the seat of disease. Excess in the combustion of air, accompanied by retention of carbon in the air-passages, causes disease that suddenly threatens life, besides creating a disposition from every slight ailment to lung, bronchial, or throat disease—measles and whooping-cough being the two most prominent forms of disease, both arising from inattention to this simple precaution in the care and treatment of infants.

The eruptions known as "*white gum*" or "*red gum*" are perfectly harmless in character; nor should they be ranked as diseases at all:—they show, on the contrary, a healthy condition of an infant's system, a strength and power which should be viewed with pleasure rather than dismay. When properly balanced in their law of health, infants are plump, with cheerful, radiant faces, a skin of good colour, and arms more or less firm and mottled; and they are cheerful, laughing, cooing, good-tempered, and engaging. The gradations of the departure from this law are, that they become flatulent and betray a general disquietude. Their eyes squint, and they become wakeful, peevish, and crying, unpacified mortals. A curdy and griping state of the bowels ensues, with a faint fœtid smell. They strain, hiccough, are purged, draw up their legs, twitch their limbs, have hardness of the abdomen, a rough skin—in fact, look generally distressed and unhappy. They start, their faces are drawn down, and they assume all the appearance of anxious age. Their heads, too, are burning hot—sure indications these of fits or convulsions.

These states unfailingly indicate a superfluity of acid in their systems, announcing the first departure from a healthy standard. If fed by the hand as a supplement to the parent's milk, disease in this case rapidly sets in; they suffer from thrush or become croupy, look hollow-eyed, grind their teeth, have irritation of the nose and arms, and are subject to worms. They get sores behind the ears and ichorous spots on the head, which break, coalesce, and become scabby; or else they get an early attack of measles. All these affections denote an advanced stage, that is, a still higher degree of acid superfluity in the system.

Infants, if fed too soon, or with excess of artificial food after birth, or purged with oil (as is often the practice because old women say it cleanses them, though, in fact, it removes a natural stuffing before Nature has had time to replace it with fresh matter), they contract many of the above little ailments very early; and then the doctor is called in to remedy the mischief of such bad treatment. If stuffed too much, a healthy, strong child may withstand it for a short time; the mucus and saliva become absorbed, and on that account the nurse is proud of its not dribbling. The subject of her care grows large, has a large head, broad face, massive limbs, and bulky belly; looks pasty, doughy, and huge as an infant Hercules; is heavy, gluttonous-looking, and sleepy. A change, however, speedily supervenes: it is seized with convulsions, coma, &c., and this fine massive infant, so lately the pride and hope of its parents, is prematurely cut off in its career! And how, let us inquire, and by what disease? Why it has died as much from apoplexy (though infant apoplexy) *as any short-necked, over-fed alderman, after oft-repeated surfeits from turtle and venison.* Infants like these have far less chance in sudden attacks than those of thinner and smaller make.

As children advance in age and begin, progressively with development of their teeth, to take animal substances, their glands and mucous membranes secrete correspondingly less and less. At the same time, however, they get a superabundant acid matter in the body; and unless this be relieved, lessened, or regulated, Nature will act by counter-irritation, producing skin-eruptions, sore eyes, especially round the eyelashes, a *gummy* state of the ciliary membrane, and deep-seated abscesses in the ears, accompanied by a discharge of yellow, purulent matter. Whooping-cough, too, may not unlikely supervene; because, as the mucous membrane imperfectly obeys the law of metamorphosis, the excess of mucus on the coats of the windpipe becomes organised into a skinny or film-like substance, partially attached and partially unattached, which serves the place of a valve, acting well at one time and very imperfectly at another.

Children thus become subject to fevers or febrile heat, yet still have a white or furred tongue. Sometimes their fevers last a longer, sometimes a shorter time, though not obeying the true laws of fever, but more those resulting from injuries; for when mechanical obstructions are removed, the patients often become well very quickly. Nevertheless, if this disposition increases, as they grow to the age of two or three years, they breed and generate in themselves an eruptive fever; such, for instance, as scarlet fever. Infants when very young are much more subject to measles than scarlet fever; for the latter is a disease of a more advanced stage of life, that only shows itself, when Nature is left to cure by a more violent action; and this she does by carrying off all superfluous acid elements very quickly.

Infants, when in arms and properly attended to, are less susceptible of contagious influences; indeed, many children may be together, one of whom may have measles or scarlet fever, yet none of the others will take the disease. This to many mothers may appear extraordinary—almost incredible; but from much patient observation, I DO NOT BELIEVE IN EITHER CONTAGION OR INFECTION. In almost every case, if not universally, there must have existed some predisposition, which might have engendered the disease naturally; and, whenever it had existed to the extent believed in, the doctors have much to answer for; for they go from house to house amongst all families, and one family will ask him after another family from whom he has just come. They deny to each other, it is true, all communication or intercourse, yet admit their doctors, and never think of his communicating the infection himself;—so much has mind to do over matter.

The superfluity of the acid and acrid materials in children will beget glass-pock, chicken-pock, and, in the more aggravated forms, small-pox. Bad air and insufficient exercise in the air, as in crowded towns, breed these diseases. With children not kept warm or properly clothed, the cold always acts on their surfaces and drives the heat to the centres, producing enlargement of the glands in the abdomen, leading to a strumous or scrofulous condition. Want of cleanliness on the surfaces of the skin and free radiation through its pores retards the gradual evolution of heat. Non-nutritious diet and cold applications to the body, cold washings or plunging in the bath with the idea which some parents have of "bringing up their children hardy," or too long exposure in a room without a fire in cold damp weather whilst naked and being washed, and the pressure of the atmosphere on their unprotected bodies, all these have the effect of driving the heat to the centres, where it is not wanted, and away from the surfaces, where it is absolutely requisite.

The disastrous result of all this is a permanent enlargement of glands; and I question, whether in mature life affections of the heart are not originated and encouraged by too early cold affusion. The large, pot-bellied condition is very early indicated by thin, spare, dwindled limbs, roughness of the skin on the arms and legs, accompanied, also, on many occasions by hairy and flabby flesh. Every internal organ is overcharged, the brain will become enlarged, and often a watery or fluid state be produced, because the reaction is not equal to the action which produces this; whereas it ought to be even greater to counterbalance it. In one case we get diseases of various character, and in another, perhaps, health only by accident.

Precocity in children is often produced by this, where the mind, *i.e.* the reasoning faculty, becomes prematurely, precociously developed—no greater curse than which can well be imagined to growing children. Tops and dolls are then abandoned for books and science, and the clever literary child pleases and astonishes its parent for a few fleeting years, and dies a prodigy, to the lasting grief of those who have so ill-nurtured the hope of its parents. Or, not to go thus far, I cannot approve, as natural and consistent, of the sharp answer and surly repartee, thought so very clever and witty, which is encouraged instead of being corrected. Children, thus foolishly—we would say further, wickedly indulged—lose by degrees all the true feelings of affectionate obedience that are found in well-bred families; nay, in some unhappy cases, for want of timely correction, they even break their parents' hearts. There again, great matters turn upon small pivots. Who would have thought that such simple causes would have produced such great effects?

Inattention to cleanliness and good nursing, and changing as soon as possible after being damped, will produce rickets and softening of bones, and, as a consequence of this, deformed limbs, attended with a disposition to breed one or other of the three sorts of worms—the thread worm, the round worm, or the tape worm. The presence of worms, we need scarcely say, is attended with capricious appetites; at one time loathing the nicest diet, at others devouring the most filthy things.

It is a current doctrine, that all children should have certain diseases called the infantile, as measles, scarlet fever, whooping-cough, some forms of pock (petechial diseases), and so on, and that they never have them a second time. Now such notions as these are, in a word, fallacies, like many other vulgar errors. The human frame is not naturally the abode of disease. Everything that Nature does is an effort to avert it; and though in general she does most marvellously succeed, yet when powers in excess aggregate or collect in the system, her only resource left to free the most vital parts from attack is to make disease an effort to cure. Many children pass through their early ordeals without what are called their natural and incidental diseases, and many have them a second or third time.

I believe, however, that when a more consistent and happier understanding of Nature's laws has been attained, and art acts more in accordance with them, many diseases we have now will be unknown except through history,—that small-pox itself will die a natural death, and future time will witness the discontinuance of vaccination. The legislature has wisely made this a law; but it is impossible not to think, that a fuller understanding of the correlative sciences bearing upon the practice of medicine will and must triumph and overcome by art that which an artificial state alone induces.

Thus far we have abundantly seen the consequences by simple gradation of the first departure from the standard of health as laid down by the hypotheses already stated in a former chapter, that acid necessarily predominates in the system, as well as the truth that the body itself is self-dependent. This cannot be seen more clearly, or more beautifully developed or proved, than in infant life. Its natural condition shows it; and in the diseases which arise they are seen to be progressive and certain. Step by step this great law unfolds itself, and any one who has watched, as I have done, the increasing scale of their maladies, and noticed by what simple means they are overcome, must be struck with the truth of these remarks. Pile up gradually symptom upon symptom, effect upon effect, malady upon malady, attack upon attack; and however these developments may follow each other, there will be found to be no violence done to law, to order, to philosophy, or to natural actions. All will be found consistent. The apparently confused jumbling of children's complaints can be reduced and comprehended under certain given stages; and these successive stages clearly show to the inquiring eye, how neglect of small matters may, as this gradation of disease in the system proceeds, end in producing the more violent affections that we are called upon to witness and relieve; whilst, on the other hand, the very measures adopted by those who understand the simple treatment of children show that the *alkaline* remedies are those most proper for all their minor as well as more aggravated disorders.

I shall now lead the infant up to boyhood and girlhood. Here we have

> The whining schoolboy, with his satchel
> And shining morning face, creeping like snail
> Unwillingly to school,

from which he often wants to shirk from some mere paltry ache.

At the age of seven, or thereabouts, important changes take place. The milk-teeth, as they are called, are decaying, and new teeth rise up—the character of both sexes altering considerably. It is here proper also to mention a few circumstances respecting the gradual loosening of the first or milk-teeth and the advent of the new or permanent teeth; for parents are often much misled in this matter. They imagine, for instance, that, if the old teeth become loose, they must be removed as quickly as possible for fear of injuring the new. Under these circumstances, however, many mothers exhibit a superfluous—even a mischievous—anxiety for the regularity of the early teeth in their offspring; and by so doing they defeat the purpose they are so anxious to effect by removing the old teeth too soon.

However loose the teeth may be, therefore, let them be carefully kept in their places; don't touch them; they should remain as guides for their successors, for whose descent they keep the apertures open, and a regularity ensues. The second teeth are, as a matter of course, larger than the first, owing to the increased size of the jaw, as well as being intended for more powerful and enduring service; and in most cases they drop down in their proper places when so guided, making the whole row firm and regular. If the old or first teeth are removed, the moment they become loose the new tooth has to find a fresh passage through the closed-up gum, which will direct it right or wrong as the case may happen, but more frequently the latter. Then, one or two teeth will occupy the place of four; and those that have to come after will find a place hap-hazard, and, of course, become crooked and irregular. Sometimes, however, the loose tooth may cause its successor to deviate from its proper direction and shoot out behind or at the side of the first; in which case it is absolutely necessary to remove it. In all these matters, a little hint thus given and care and thought used, your own good sense will suggest the necessary steps to be pursued.

At this age children's ailments become less infantile and fewer, because they are able to resist them more sturdily; though when they set in, they do so with greater intensity. Free play should then be given to all their limbs, they should be much in the fresh air, and attention should be paid to regularity in their diet and early hours. They are free, it is true, from the sterner troubles of the world; but still they have many little troubles of their own, and many aspiring wishes before reaching their fourteenth year. "Oh, little fool!" as Hood says, "while you can play a horse at school, why wish to be a man?" The boy, however, may take his chance: the girl must have a few words devoted to her exclusively. She approaches her next and second seventh year, and most important is this time fraught with anxiety and thought for the mother; since now too often come

Sallow cheeks for Rosaline.

An organ which Nature has held in abeyance, and which hitherto has been of no use except as a purely mechanical arrangement, now begins to assert its consequence. It increases with all its connecting links and prepares itself for a functional action; and on this hidden natural development, healthily or otherwise conducted, depend the joyousness, the sprightliness, the health, or on the other hand the discomforts, pains, and coming miseries of dawning womanhood. Happy is it, indeed, for those in whom Nature and education render this change auspicious; though there are many, alas, who suffer a long train of Protean maladies, and furnish science with sad experience of the ailments incidental to the nervous system. I cannot help comparing by analogy the difficulties of boning and cutting of the teeth in infants, with those that attend the initial exercise of this new function in young women. All those little fractious ailments of infants and upsettings of their systems ending in convulsions, are here aggravated through additional nervous and bodily powers, ending in faintings, hysterics, or epilepsy.

The only right way, I am sure, to correct these evils is, as much as possible, *to leave Nature to her own work*, simply keeping the machinery in the healthiest working condition on the principles I have endeavoured to elucidate, and maintaining as far as possible the balance of health. When art falsifies all natural actions, and every woman's daughter with sallow cheeks is put down to have "a sluggish liver," and the hated calomel walks bodily upon the stage, then drug-disease so mixes itself up with all natural disturbances, that it is impossible to say what at times is really the matter, as these come before one so vastly complicated.

Under such unhappy circumstances, frightful dreams at night, constant pains in the side, cold feet, pain and weight of the limbs, fatigue in doing nothing, or with trifling exercise, heat and pain at the vertex or top of the head, and general lassitude or indolence,—these are the symptoms of their ailments. In short, all the symptoms I have mentioned as occurring to those who have cold feet and go to bed with cold feet exist here, and, in addition, dreams of danger, frightful nightmare dreams, like the wolves of an over-heated German vision, or the sense of some ever-coveted but never-attainable object, —a heavy lumpy sensation, in fine, accompanied with the half-sleeping, half-waking sensation of sinking through the bed, childlike timidity and highly nervous excitability, with proneness to laughter, which at last becomes immoderate, and terminates in hysterics, and, as extremes always meet, crying, bursts of crying, often for nothing.

How much *salt* water thrown away!

These remarks may suffice to warn the mothers of families respecting the immense importance of vigilantly watching over the health of their female offspring at this critical period; for on this mainly depend the subsequent health and happiness of those who are the cherished objects of their parental solicitude.

Here, however, as infancy closes at the verge of womanhood, I must stop, and speak of other things. The treatment for all the apparently numerous complaints of infants and children is simple; because most of these are the effects of one cause. Taking the subject by itself, the largest work could be written on it, every deviation having a fine name and being duly laid down with rules; yet this is not what you require. Your own experience of infants and children will tell you how many of these things you have yourself witnessed, and your chief object is to have general directions. Two main objects must be kept in view: first to prevent, and next to alleviate disease.

Much of the treatment of infancy and infants is mechanical. If you know what Nature requires for them, your own common sense will point out what to do. Cleanliness, due attention to their proper wants and changes, warmth, pure air, washing in warm water, no unnecessary undressing or needless exposure to air at a low temperature, not too much light whilst in long clothes, a veil both in summer and winter, that the light of the sun may not be too strong nor the winter's wind too cold, no unnecessarily tight bandages round them, but free play for all their limbs,—these are the main duties required of the nurse.

Children, too, should never be waked when asleep for any purpose whatever, as sleep is "Nature's soft nurse;" and the longer and oftener infants sleep after their meals the more and better they digest them and thrive. They should also be placed in cradles or berceaunettes, on beds or sofas, rather than on the lap; for infants when once used to the warm lap, will not lie in a bed. With a lap-child the nurse or mother has never time to do anything; whereas, if free, they can apply themselves to many things that are of far more importance to the child than unnecessary nursing.

It is a mistake, again, to pacify an infant's cries by constantly putting it to the breast. With hearty and thriving children this should not be unnecessarily done. The time at which they had the last meal will point out, whether another meal is required, or whether its cries arise from flatulence or pain. Be careful, also, to take the opportunity of keeping them as much as possible in motion and awake during the day, so that both mother and child may have a long night; for if the child sleeps all day, and lies awake all night, what time will the mother have for sleep? Night, in fact, is for both, as for all of us, the true time for sleep.

The warm or hot bath is really not necessary in this country. A good flannel or sponge and plenty of warm water before a fire, are amply sufficient to keep an infant in perfect health and cleanliness. When well washed and powdered (which is done in case any damp should remain from an imperfect wiping), let them be well rubbed over the body with the hand; for they like and enjoy it above all things, and it has the additional advantage of rendering the skin supple. As soon as dressed, too, let them have a meal if they require it; but let it be a short one only, for the fatigue of their little toilet induces a desire for repose, which the nurse should allow as soon as possible, or else her charge will become fractious and peevish.

If children be taken into the air, let them by all means be kept moving. Always noticė them when at the breast, if their mouths seem full of saliva; for this is auspicious. Above all, be lynx-eyed, and notice their first ailments. If crying and drawing up their limbs precede an action on the bowels, and if the motion be thick or curdy, or hiccough occurs after feeding them, these are symptoms of flatulence. Place them on their stomach with the face down, as this encourages puking or vomiting; and the acidity of the stomach, which is necessary for alteration and digestion of the milk, is natural. The same apparent change takes place here as with milk or cream put over a fresh fruit pie or pudding, as I have elsewhere mentioned. Just as the lactic acid of the milk and the malic acid of the fruit neutralise each other, so do the lactic acid of the milk and the gastric acid of the infant's stomach mutually act, producing a curd.

In case of infants being seized with convulsions, hot baths have always been considered a good mechanical remedy; but on the whole, I do not like them so well as a small blanket immersed in hot water and well wrung out, folded enough only to be able to cover them up and envelop them. This is what I call the *blanket bath.* I have elsewhere observed that no radiation takes place in a hot bath;—and for this reason many children are not benefited or recovered by them. In the hot blanket, however, as I have said, a vacuum is produced, heat freely radiates from their centres, and free perspiration ensues, which is precisely what is required, and which cannot be attained by the bath. The poorest woman, who can heat a kettle, has this kind of bath at her command; and depend on it, no bath for infants is equal to the BLANKET BATH in infantile convulsions, or fits. After having been in this sufficiently long to recover them, prepare a hot dry blanket to receive them. This will prevent exhaustion by over-sweating them, will dry them, and save exposure to the cold atmosphere,—a thing much to be guarded against.

As with adults, so with infants, disease acts by gradation and law; and if these gradations were attended to, they would not have convulsions at all. The first disposition to a departure from a healthy standard in infants is a subsidence of the moisture in the mouth, and a furred appearance on the tongue, just as we see with adults. The tongue looks foul from edge to edge; and if half fouled in this way, a drop or two of ipecacuanha wine, with a tea spoonful of Dinneford's solution of magnesia, frequently repeated after each meal, will produce a little puking and neutralise excess of acid, when they will soon become better. You will immediately see by this simple remedy, that the tongue will have lost some of the fur from the edges, leaving a little cone of fur down the centre. This will always imply and point out a retrogression of disease, whether it has been removed by natural or artificial means.

The tongues of infants can be seen every time they cry without difficulty, and should always be watched. If they get a little action in the bowels afterwards and are better, you have done enough. Hail as happy symptoms their free dribbling and purging; for then you will have little need for the use of medicine. An infant's tongue is rarely quite red, except after a severe attack of thrush. For this, a little borax and honey is considered a good thing; but a little vinegar and honey will do equally as well, or a little dilute sulphuric acid and honey rubbed by the nurse's finger round the mouth. Thrush is caused by excess of heat in the stomach and alimentary canal,—the very point I have been wishing to impress upon your attention, and to direct your remedies towards counterbalancing this by inducing the greatest heat to the surface.

Infants, it may be thought, have legions of complaints; else, why should so much have been written and said about them? Nevertheless, their real diseases are few and simple, and so are the remedies, if any one will give only a modicum of attention to them. If infants are captious and cross, it is, in almost all cases, owing to the presence of some crude material in the alimentary canal, which thus causes wind or flatulence. The greatest care should be exercised, and the greatest caution enjoined in giving infants any opiates whatever.

I have said in another place, that acids and opiates are the proper remedies in fevers and inflammations. Now, infants have very few of these affections. Aggravated thrush is the only one condition indicating any necessity for acids and opiates in the treatment of infants, where there is sublatent inflammation. Scarlet fever, indeed, is the only actual disease, in which it is positively called for. Hence, the whole treatment of infants and children up to a certain age, and for all their complaints, except those above mentioned, consists in the use of the alkalis. Their internal pains, I maintain, rarely or never arise from inflammations. I have elsewhere, also, said that inflammation of the lining membrane of the intestines does not cause pain.

The uneasiness and pains suffered by children arise, in most cases, from obstructions, which should be carried off. Mineral substances should not, except in extreme cases, be given to infants at all; and hence it is not correct to use antimonials or calomel. Children, in fact, require but few medicines for their little simple ailments, and for the thousand little ills that they are heirs to. Ipecacuanha wine, Dinneford's solution of magnesia, a little powdered rhubarb, chalk, magnesia, peppermint, and dill water are all that are required in a general sense. By properly using these, disease may be not only prevented, but when present will be speedily cured, if the nurse judiciously ring the changes on these medicines in greater or smaller doses, according to circumstances. A dry mouth and deficient action of the glands can be brought back to a proper moist state and secreting condition by frequently repeated, but small doses of ipecacuanha wine. Acids and crudities can be counteracted by magnesia, Dinneford's solution of magnesia, or prepared chalk. If a stronger purge is necessary after this, a little castor oil will be found useful; half a tea-spoonful beaten up in a little sugar and water, so as to make about three spoonfuls.

WHATEVER MEDICINE BE GIVEN, HOWEVER, LET IT BY ALL MEANS BE GIVEN WARM. Infants should never have anything cold given to them, particularly physic. Valuable as a medicine may be, if given cold, it does more harm than good. If sent by a medical man, a little should be poured into a teacup, and that teacup placed in hot water to warm it. If more powerful actions of the bowels are necessary, two or three grains of the grey powder may be given in something thick, followed two hours after by the castor oil. Never give this powder, though, without the oil following it; for it is most important that it should come away with the child's first motion, being the antacid precursor of the oil. Above all things, never give children *calomel;* for this, as before observed, is just as absurd as attempting to open a Geneva watch with a crowbar.

From a very large experience with children, and in consultation with others where this dreadful drug has been prescribed, I have shown how easily everything could be effected without it, even after long-continued fits and convulsions, where it was and is considered a sheet-anchor. It is no such thing! The evil done by its use is enormous, and sometimes irreparable; yet you will constantly hear it said that children can often stand calomel better than adults. They may so, it is true; but they who say this, and use it, have not taken the trouble of observing and investigating the mischiefs it inflicts. My belief, indeed, is, that *no drug ever used has complicated natural diseases so much as calomel and the mercurials.* Nevertheless, I have heard stupid mothers, bitten with the mercurial fever, say "all their children were bilious," "all had sluggish livers," and fly on every occasion to this most pernicious remedy, yet wondering why they all died early, one after another.

The most useful class of active remedies for children are EMETICS, just as they are in many primary diseases of adult life; but these have *gone out of fashion*, from the simple reason that they have been improperly administered. The time for giving them in infant and adult life is, ALWAYS, WITHOUT EXCEPTION, AFTER A FULL MEAL. Still, as they have been given thoughtlessly on empty stomachs, and much straining and misery has resulted therefrom, the million have been frightened out of their beneficial use. They should never be given on an empty stomach,—never in any case, unless a proper full meal has been taken. Long illnesses, and even life, may be saved by their proper administration; but *fashion* has crept in and marred some of our best remedies, departing from simplicity and common sense, and introducing absurd drugs and chemists' compounds,—compounds of which little is known; and thus life is trifled with, and sacrificed.

With respect to all skin-eruptions in infants or children, my earnest advice once more is,—to get them cured as soon as possible. *Never allow the skin to take on disease*, and be unattended to, or thought of as nothing, whether arising from or at the time of teething, or at any other time, in any part of the body, especially the head and face. If on the head, and any scabs firmly adhere thereto, apply the ointment, as directed at the end of this book, and cover the same with gutta-percha tissue. Never, if you can avoid it, when ointments have to be applied, allow linen or lint to be put next to it; for these fabrics absorb the ointment, and so the part gets little or no benefit. Caps, however, should never be used; for they are fruitful sources of evil, first receiving a discharge, and then planting it elsewhere,—causing, in short, continual inoculations. The great object of the gutta-percha is to keep the ointment on the spot to which it is applied, and also to induce perspiration. All scabs on becoming loosened should be removed, and the part never allowed, if possible, to scab, or harden again. The parts should then be well wiped, *not washed;* for this latter process most frequently irritates and keeps up the disease, especially when soap is used.

As to bringing children up by hand, a few hints may be useful. An infant reared by the breast alone imbibes a warm, thin fluid, not actually so rich in animal nourishment as that of any other animal, for the reason I have shown, but still amply sufficient for the alimentary purposes intended by Nature.

Now, what is done, when a child is brought up by hand, is the very reverse of all this. Thick food, and the richest of cow's milk, is given, as if on purpose to overload its system, and produce apoplexy. When children are *hobbed*, or brought up by hand, the proportion of one-third milk and two-thirds water, or any other thinning liquid, may be given; and plenty of this should be sucked from a bottle, as the sucking action tends to exercise the child's glands. If the food be thickened with a little arrowroot, it should be strained whilst hot, before given.

Never warm up any food a second time. Make only what is sufficient; and should any be left, it is the best economy to throw it away. Nature always gives fresh every time:—why not follow her? She always gives it very fluid and warm:—why not do the same? Never feed with a spoon, if you can get a bottle; for by using the former a larger quantity of food is thrown into the child's stomach than it is able to digest, and you have, as a matter of course, flatulence and disease.

Lastly, let me observe, that in treating the many little complaints of children at the breast, it is always as well, before medicine be given them, to inquire into the state, and condition, and health of the nurse; for, after all, she may be really the patient, and the proper party to take medicine,—not the child.

# CHAPTER VI.

## ON FEVERS: THEIR CLASSES AND THEIR TREATMENT.

Fever generally considered—Fevers from wounds, and those dependent on predisposition—State of the blood and secretions in fevers—Distinction between *arterial* and *venous* fevers—Eruptive fevers and their threefold classification—1. Scarlet and petechial; 2. Fevers with pustules; 3. Measles—General laws of fevers—Attention to general conditions of the body—*State of tongue as an index to treatment*—Acid and alkaline states—Diet of fevers—Management of the bowels—Scarlet fever—Small-pox, petechial fevers, and quinsey—Measles; its wide distinction from scarlet fever—Summary of treatment in various classes of fevers—Congestive and inflammatory actions distinguished—Confused and erroneous notions of the profession on fevers—Empiricism *versus* a philosophic system—Value of glossological indications in fevers—Fevers of children chiefly congestive; their general treatment—Congestive or venous fevers considered as a class—Intermittent and remittent fevers congestive—General directions—Inflammations, local fevers—Erysipelas and its treatment—Inflammations of the mucous and serous membranes distinguished—The use of calomel condemned—Fevers of the poor.

No diseases, perhaps, are more alarming than Fevers. Their duration, indeed, their uncertainty, their changeableness, their accompanying delirium, their emaciations, their extreme prostrations, attended with long convalescences, their ultimate recovery, or else their wire-drawn continuance, lead to the belief that they have exhausted themselves and left the frame, though only, as it were, to bid the final spark to follow. Many, too, and very various are the effects, or, more properly speaking, the parting curses, which some fevers leave behind in the constitutions of the sufferers, according to their variety, should the system recover from them; and, lastly, they exhibit a state of existence which leads to the belief that they will recover, but which closes all misery and suffering in death. Such are fevers!

To view them with fear, however, on account of such results, is not philosophy. I shall, therefore, endeavour to point out their simple origin, varieties, and distinctive modes of treatment. I have elsewhere spoken of the laws attending their advent; and I am now to speak of disease antecedent to their first inroads, then their gradual advance, and lastly, the various forms they assume.

First, then, let me allude to those sudden feverish actions resulting from wounds and injuries, the first effects of which are attended with thirst and general anxiety for the consequences. For instance, a soldier, apparently in perfect health, receives his first wound in battle, and is disabled, but knows not to what extent. This produces a sudden shock in his nervous system, and a thousand thoughts possess him. He doubts, fears, and hopes, all in a moment; his courage remains undaunted; but his first distressing symptom is thirst. In proportion to the reaction of his nervous system, his blood circulates more freely, and, as he recovers the immediate shock, his feverish thirst lessens and subsides.

The first symptoms, it will be seen, were the effect of all the organs being momentarily arrested in their functions; the second were the result of their returning to their duty. According, however, to the state and habit of his body, or his secretions, the fever so suddenly set up may be only transitory; or, on the other hand, it may continue for some time in many varied phases. Thus it is that a small wound or injury may excite in one person a most dangerous, consuming fever, which may terminate fatally; whilst in another, a terrific injury will produce very little fever, and the patient may recover in an incredibly short space of time. The reason of these apparent contradictions rests on the principles I have previously laid down,—namely, *the progressive stages which a departure from the standard of health in the system had previously taken.*

According to current doctrines, this is designated *predisposition*—a term used to denote a fact without expressing a law,—whilst, on the other hand, a law always rests on a diligent *deduction* of facts. Such fevers have little in common with those set up in the system from a diseased state of the blood itself, as I shall explain hereafter. The wounds, which are the proximate causes, being healed, and the shock to the nervous system overcome, the effect of such causes very soon yields. It may so happen, however, that wounds of a dangerous character will produce disease of the limbs, so that amputations may become necessary; in consequence of which consecutive actions take place that lead to inflammations and diseases of internal organs, followed even by death itself. Yet all these form but a small per-centage in the great mass.

The slight fevers, proceeding from wounds and injuries, must never, then, be looked upon as alarming of themselves, but only as probably so, owing to fortuitous causes, as the greater proportion of the patients recover with amazing speed. The inflammations around a wound, or extending up or down a limb, are the cause, in fact, of fevers in a local part, which may, through the tissues or by general sympathy, produce a fever in the general system. All these actions are founded on their own special laws, and for the most part subside, as soon as the causes in which they originate have been removed.

We are, in the second place, to consider those classes of fevers which may be said to be elaborated in the system itself. These arise from a generally disturbed state of the secretions, which is continued until the vital element, or the very blood itself, is affected in all its various complicated properties. The continuance of the fever, and the varied character it puts on, in fact, abundantly show that these elements find a difficulty in maintaining their proper relative balance; for, as I have before observed, the blood requires to be always maintained at a healthy standard. Hence, Nature, in her effort to conform thereto, sets the various powers of the system at work to regain that standard, and in doing so, produces the various forms of fever, which we term, according to their nature, *continuous*, *intermittent*, *remittent*, *tertian*, *quartan*, and so on; and I may here observe, that we often imagine a fever gone, when we see it not for a short time; though its return occasionally falsifies our hopes.

As to the blood during fevers, all its elements are not only at war with one another, like a house divided against itself, but all the secretions made from it by the different organs to be used again within the body thus become first disturbed, then absorbed; and these secretions, not being in a normal or healthy condition, add perpetual fuel to the fire, producing no end of confusions, symptoms, and effects; in fact, a very pretty state of affairs.

Now, the two greatest of these disturbances depend upon the fact, whether the fight and war of elements is maintained most in the *arterial* or in the *venous* system; that is, whether it resides in the blood sent from the heart to nourish the whole of the system as contained in the arteries, or in that of the veins through which the blood is returning to be revivified. This is a new point of view worthy of notice.

Thirdly, the ERUPTIVE FEVERS will claim our attention; the very characters of which have given to them their own peculiar names, and which I shall classify into three divisions, for instance:

A.—*Scarlet fever*, *spotted fever*, or those having large rosy blotches, or *petechial fevers*, or those attended with small spots, indicating a low or typhoid character.*

B.—A class of fevers attended with pustules, such as *small-pox*, *chicken-pock*, *swine-pock*, *glass-pock*, and other eruptions of similar character; or the fever that attends upon *quinsey*, or sore-throat.

C.—Those fevers which commence with *measles*, and are always attended with difficulty of breathing, indicating, more or less, affection of the lungs.

These classes have hitherto been so confused and mixed up together, that not only has great error arisen, but no unity or simplicity of treatment has been or could be adopted for their recovery. Now, this is just what I wish to point out with the view of rendering the whole subject intelligible to the non-medical reader, for whose guidance these pages are written.

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* I use the term *typhoid*, because it is a general one, and also because the word typhus is an ugly one. In fact, true typhus fever has not existed for some generations past; though we moderns are still frightened, as at a ghost story, by this name, which once spread its terrors like that of the plague. Therefore, do not be terrified by any alarmist who makes use of the term "typhus."

All fevers may be classed according to their medical treatment, however mixed or apparently opposite in character; whether they arise in the first place from wounds; or secondly, from internal obstructions, bad or insufficient food, or excess of nourishment; thirdly, from excitement, inflammation, malaria, or infection through the respiratory organs; or fourthly, from what may be generated within the system itself by laws disturbing the elements of the secretions which become absorbed; or fifthly, from the retention of excrementitious fluids or gases in the system thus affecting the condition of the blood itself in its arterial or venous states; from whatever cause, in fact, that induces fever of any character.

To simplify this view of the case, then, I shall assign them their acid, alkaline, or neutral laws as bases; because all medical treatment, as I have previously shown, must consist in one or other of these three. If this be so, we have only to consider what beneficial results are obtained from the distinct or mixed actions of these remedies, and reason on their philosophy; tracing as nearly as we can those distinctive indications, that refer more to the general than the specific conditions of the body; for an exclusive attention to the latter is too often the rock on which science, reputation, and lives are wrecked.

Science, we know, is apt to delight in specialities of disease, whose number is like the sands on the sea-shore, and the distinguishing of which involves a vast effort of memory which no man can aspire to, or hopes for in a lifetime. Yet all action resolves itself into certain generalities, as matters of course. As you have no prejudices therefore to overcome, and cannot enter into all these dry details, the clash of phrases, and nice distinctions, or the war of words, your simplest plan will be to enter with me at once into the generalities of the subject. This subject, however, will be better understood, when I have noted the peculiar appearances of the tongue in the several kinds of fever, and the variation of treatment indicated by that valuable diagnostic. I shall, therefore, treat of the whole seriatim.

First, then, on the treatment of *traumatic fevers*, or those caused by wounds or bodily injuries, consequently of only a temporary character;—if the tongue be furred or white and moist, the alkaline remedies generally are to be used; because, whilst this appearance denotes functional and secreting actions of organs going on properly, it also shows that the stomach and its secretions are in an excessive acid state, requiring some counteracting remedy. Should this fur on the tongue become dry and be attended with thirst, it then indicates that the spleen is not acting properly, and the system is losing its natural bitter principle or tonic. This is the first step towards an inflammatory action, but may be remedied by the addition of a slight bitter to the medicines. If not, this condition will be further increased by actual inflammation according to the laws of gradation, and will be shown by the tongue becoming hard, dry, and brown.

Proper functions do not now take place in the stomach; for that organ has lost some of its power of secreting gastric acid juice, and is still further impeded in its natural actions by receiving the alkaline secretions from the salivary glands, which of course it cannot neutralise. You have therefore to assist Nature by giving acids, anodynes, and bitters. A few doses only will probably set matters to rights and adjust the natural standard,—a happy change that will be immediately shown by the tongue resuming its moist state. If it then continues furred as well as moist, cease giving the acids and return again to the use of the alkalines, so as to keep the system in its proper equilibrium. Dieting, moreover, will often relieve this state, showing that even Nature herself will act beneficially, but only under such laws and conditions as those of which I have previously spoken.

Whilst the tongue is dry and furred, the system cannot bear stimulating or nutritious diet, but rather the *non*-nutritious elements and plenty of cold water; whereas the moist, furred tongue indicates a condition of the system requiring nourishment and support both from solids and fluids. This is one of the great advantages of taking a broad and general view of the system, as shown by the character of the tongue.

SECONDLY.—In fevers without eruptions, look again at the tongue. Should they occur, when that organ is more or less furred, or sometimes dry, sometimes moist, this denotes that the warring of the elements in the blood principally resides in the *veins* or *venous system;* in which case bleeding may prove beneficial. As long, however, as the tongue continues moist, alkaline remedies should be persisted in, going back to the acids, anodynes, and bitters, whenever it shows a disposition to dryness; and, as in the last case, plenty of cold water will prove useful.

In this state, while the system is exercising increased action for the purpose of setting up or restoring the equilibrium of nature, the bowels will usually be found to act regularly without the aid of aperients. Nevertheless, should aperients be needed, at all events choose a time to give them, when the tongue is *moist* or when the patient has a frontal or *forehead* headache. If on the other hand, the fever be accompanied by thirst and some little wandering and incoherency, with a clean, dry, red tongue, especially towards the tip and edges, with a sharp jerking pulse and dry skin, and the bowels be locked up, KEEP THEM SO! and let your remedies be the acids, anodynes, and bitters; oceans of cold water to drink and cold lotions to the head. Above all, "spill not one drop of blood;" for this kind of fever betokens the commotion to be in the *arterial* system, and further, if there be headache, it will be in the temples. The fire in the house is active; therefore add not fuel to it, nor do aught to increase it; but by all means starve it out.

These are the cases which you hear of, in which a patient has lived upon a grape a day for a fortnight, and taken nothing but cold water to assuage his parching thirst. Should you attempt under such circumstances to open the bowels, you will fail, and a repetition of the attempt may still prove a failure. In case, however, that you do persist in doing so against all the laws of Nature, and at length succeed, delirium and death will probably reward your temerity and ignorance.. Be careful then closely to observe, and to philosophise upon what you observe;

by doing so you will grow wiser, and eschew such bad practices.

Thirdly.—Of eruptive fevers; or those which throw out of the system a morbid material (which is an acid), to relieve the internal elementary war.

> Diseased nature oftentimes breaks forth in strange eruptions.
> *Henry IV.*

These again I shall notice under three distinct heads:

First.—Scarlet, or arterial fever; in which you will first see a *very foul, loaded tongue* with its *edges and tip scarlet red.* The fur may be of varied colours, from white to buff. If white, then, it will resemble a layer of thick milk. Watch it, and you will see it break away from the edges, and in a few hours leave the whole surface bare and intensely red. The throat will also become sore and ulcerated, a condition that invariably forebodes a violent attack. If on the contrary, the tongue is not so furred, and you can see the red papillæ, or little dots upon it through the fur, the throat will not be so sore, and the attack will assume a milder form. In the former case the papillæ or dots (which are the terminations of arteries), will elongate, and the sense of taste will be much impaired, or even destroyed. The tongue never cleans like this in measles, and you never have sore-throat. If, therefore, your unpractised eye cannot clearly distinguish between the two by the eruption, you will be able at all events to judge by the appearance of the tongue alone.

Scarlet fever may come on with loss of sense, wildness, or delirium, while measles are seldom or never ushered in by this symptom. As soon, then, as scarlet fever sets in, commence with your acid treatment. Sponge the whole body well with vinegar and water, tepid or cold; for there is a fire raging within which burns up the skin externally, and the mucous membrane internally. The tongue loses its protecting mucous covering, and the same happens throughout the whole alimentary canal. In fact, it seems to fly off. Now the reason why the skin is thus burnt up, and why I call scarlet fever arterial, is,—that the elements of the blood in the arteries are of such a character, that when they reach the capillaries or connecting vessels between them and the veins, they cannot undergo their proper change at the proper place and time. The skin, in fact, is now as much burnt by the internal elementary fire, as it would be from being scorched by external heat from the sun or a fire. As soon, however, as the arterial blood recovers its regular standard, the capillaries again perform their duties correctly, though the skin itself peels off, and the internal skin or mucous membrane is equally destroyed, exfoliating and becoming metamorphosed, at the same time causing more or less internal disturbance.

Wherever, too, there is mucous membrane, it will share the same fate in the violent attacks of this disorder; for where it cannot exfoliate and become metamorphosed (as it frequently cannot), it produces evils hereafter to be explained. In milder attacks, however, the minuter ramifications of the mucous membranes escape the disease altogether. Indeed, attacks of scarlet fever may be so mild as to be unobserved at the time; though some little ailment may lead to the physician's attendance afterwards, and in such cases the rough exfoliating condition of the skin at once discloses what has occurred, and the physician has to contend only with the sequences of disease. I mention this, as I have observed its occurrence so frequently.

In the treatment of scarlet fever, care should be taken that the air be pure and not too dry or cold to the patient, for when the violence of the fever has abated, you have the same condition of circumstances to attend to, as if it were (and, which it might as well be called), *gastro-enteritis*, or inflammation of the whole lining membrane of the alimentary canal; a state in which the whole membrane has lost its protecting covering and cannot resist any violence from too hot or too cold temperature, or from fluids in the shape of either stimulating food or alcoholic drinks. Hence the use of the anodynes and opiates, which retard and hold in abeyance all the natural actions and functions, unless these membranes by a natural self-dependence become restored. Clean linen and great attention to external ablutions are necessary.

Seeing this condition, it will immediately strike you that it would be hurtful, nay, dangerous to let blood in any way; *because it is an arterial disease.* Keep the bowels as confined as possible; or if Nature wills it otherwise, then keep them under a wholesome check: above all be careful not to administer anything to irritate them. The drink should be milk-and-water, barley-water, linseed-tea, sugared water, and other emulsions, whilst lemonade is most grateful both as a medicine and a beverage. Whatever be administered, moreover, let it by no means be too cold; for that is as bad as being too hot. In mild cases you need not dread danger. In moderately aggravated cases, even, still fear not the ultimate result. As soon as the fourth or fifth day arrives, mutton broth, crude milk, and all greasy and oily messes may be administered to salve and sooth, or anoint and restore the diseased mucous membranes; for all such diet has ultimately an acid tendency. Thus you will see, the medical treatment and diet perfectly accord.

Such indications being here shown to exist in the body under an attack of scarlet fever, we must inquire what are the consequences, or rather the parting curses, which this disease leaves in the system. The first of these is the functional disturbance created in the deeper recesses of all organs having mucous membranous outlets, especially the glands, which are as much destroyed as any other parts; and they find, also, a greater difficulty in coming away or exfoliating, in consequence of which they must necessarily impede the formation of new membrane. Although this process is always going on naturally, its total destruction is here too sudden, and these minuter tubes become blocked up.

This is seen, for instance, in the earliest stages of all malignant cases, and should the neck on each side be much swollen, I always apprehend danger; for not a gland in all this vital region can perform a healthy or perfect function. In milder cases, however, supposing the patient even to recover from the immediate attack, the natural result is still obstruction of glandular functions, affecting their external coverings. Precisely, indeed, as congestion of the deep-seated bronchial tubes affects the lungs and causes pleurisies,—so these affections in other glands produce low inflammatory actions on their external coverings, or the serous membranes which secrete inordinately, and dropsies are the result. Then arises an entirely different state of disease, to be treated in the best way possible—disease which is often complicated in its character, and gives rise to Protean maladies that must always make the physician an important member of every community; for these cases are alarming, and cannot be treated by inexperienced hands.

Dropsies, however, are not special diseases of themselves, but are incident, or a consequence on many others. Any organic, any high functional disease, may produce dropsy. By the first I mean such a state of organs as cannot be renewed or repaired, and by the latter a disturbance in their actions which may be overcome—such as their mechanical and functional disturbance after scarlet fever, when the entrances and exits of the finer organs are blocked or impeded. Recollect here, then, the peculiar red tongue in these fevers—a peculiarity that ever indicates either an active or a chronic form of inflammation in the whole lining membrane of the alimentary canal. Whilst this lasts, therefore, do not leave off either the acid form of medicine or the oleaginous diet, until you see the tongue putting on a protecting white fur, or showing a disposition to become furred. Here you see the causes and treatment of scarlet as well as spotted fevers.

The next class of fevers are small-pox, chicken-pock, glass-pock, and other papular eruptions, to which we may add quinsies. Now these proceed not from the warring of elements directly in the arteries or the veins, but rather supervene on the termination of the one, and the commencement of the other, in the capillaries (see page 12) ; for when these disturbed elements, being still in force, reach this point, the necessary change of the blood can no longer take place; when the pores become obstructed, congestive action is the result, and in time they exude filthy, purulent matter, either in aggravated form, as in small-pox, or more mitigated, as in chicken-pock; or else they collect in one focus, forming an abscess in the soft palate, as in quinsey. In such cases it will invariably be seen that the tongue is white, and more or less furred, especially in quinsey. The alkaline treatment is here indicated, as a matter of course; and when this is needed, always support the system according to the rules of diet with fresh-cooked meats, roast or broiled.

In small-pox it must never be forgotten that pustules form internally as well as on the surface, as is seen in the mucous membranes of the eyes, nose, mouth, and throat. Let me remark, too, that in the treatment of this disease, one most important point to be observed is the most perfect cleanliness and constant change of linen, with the freest and purest air, but in *a dark room*—"*dark as Erebus;*" for in these diseases the eyes are always weak, and a subdued light saves them; for light, let me inform the reader, is one of the most powerful of the electric agents exercising a very important chemico-vital influence on the increasing or subsiding pustule. In mild cases, attention to the darkened room prevents the pitting of the pustules, and, consequently, the patient from being marked, and in the worst cases it considerably reduces the depth of the pustule, though the patient may be marked.

The parting curses which this dread disease leaves behind in the system are in many cases painfully manifest: such as impaired vision for life, deafness and greatly altered condition of the senses, and even the temper and disposition of the patient; sweetness of expression being changed to the reverse, an amiable temper soured, susceptibility of thought and character changed to sharpness and irascibility, and these too often lasting for life. The change of the finer internal senses, in short, becomes as complete as that of the external textures either in colour or general appearances.

As respects quinsey, during its first symptoms emetics may be given after a full meal—never upon an empty stomach; but as the quinsey increases, before the abscess is ripe enough to burst, if it be very bad or extensive, very little, if anything, can be taken or swallowed. Yet, if anything can be administered, let it be alkaline medicine, which reduces the superfluity of acid in the stomach; for when the abscess has once burst, the disease is then naturally at an end, and the patient gets well very quickly. During the progress of the quinsey, until it bursts, no other gargle should be used but warm, or even hot, water. As soon as it has burst, however, and fully emptied itself, if there be any redness or ulcerated state of the tonsil glands or throat, acid gargles are the best. I have used for many years, and much prefer, the frequent application to the parts of a large camels'-hair brush frequently dipped in the gargle,—as by this method the basis of these sores are more completely touched, and a quicker healing process is obtained; besides which, I have another reason for recommending this;—namely, that the teeth may be tender or decayed, and the acid, if simply gargled, injure them.

If the throat is very putrid from aggravated sores in it,—in these cases, or in scarlet fever, a solution of disinfectants, as the chlorides of soda and lime, may be used as a gargle, or with the brush. Free ventilation and good air, even bracing air, are required in these cases; for the oxygen here acts freely upon the surfaces of the mucous membranes, and is in short as beneficial an agent as medicine; whereas with the clean, red, glary tongue of scarlet fever or mucous membranous inflammations, it is highly injurious, and keeps up great irritation; for this simple reason—that the mucous membranes are unprotected.

I come next to the last division of these fevers;—I mean MEASLES, a disease generally ranked with scarlet fever, as if the two diseases had everything in common, whereas they are totally opposed in all their phenomena of cause, effect, and treatment. Scarlet fever, in short, is entirely an *arterial* disease requiring the acids, anodynes, and opiates for its cure, as well as refrigerants; whereas measles is a *venous* disease, having all its disturbance in the elements of the blood in the veins. In scarlet fever, except under most peculiar symptoms, bleeding in any form is dangerous to life, while in measles it is most beneficial at certain times, and under certain conditions of the disease, by the lancet as well as by leeches; and if blood is not withdrawn at a proper time, the patient may be lost. It is fortunate when this is not required.

In measles, again, the alkaline remedies and expectorants are of the first importance; and certain destruction ensues from the use of acids or anodynes, especially the latter. In scarlet fever, refrigerants and cold vinegar spongings to the body are required; while in measles, on the contrary, the greatest care should be used, that even the bed-clothes be not too hastily removed, or any cold admitted to the surface; nay, further, even the linen must not be changed, or the remotest approach to washing or ablutions allowed,—in some cases not for several days, lest a too sudden check be given to the venous circulation, or to the eruption; for if this retires too soon, the lungs become endangered from congestive action,—a state in which they always are more or less involved, even in the mildest attacks.

When measles are well got over, you can scarcely purge too much; and indeed, unless this be done, the parting curse that this disease leaves behind is seen in a large amount of impurities in the system, shown especially in sores about the mouth and nose, and in enlarged, swollen lips, especially the upper one. The reason why purging of the system after meals is required, is this:—that the venous blood, being the original seat of the disease, is constantly acting as a diluent to the new elements formed from the food; as I have mentioned in a former chapter. It carries the poison, therefore, into the arterial system; and all organs nourished from this require at first well purging and cleansing, to expel and exhaust the poison thus introduced in the course of the malady; and should this not be done, the above will be the results from its gradual accumulation, and I may say *germination;* for a small amount of poison in the blood germinates as a seed in the ground.

The above symptoms after measles, it is true, do not show themselves at first, and for the cause assigned;—namely, that the cumulative process has not yet developed itself. At the end of a certain time, however, the poison has had time to develop itself, especially in children; and if such a case is seen for the first time by the experienced physician, his immediate question is:—"How long ago is it since this child had measles?—for here are its sequences." This morbid condition of blood in the veins thus becomes the fruitful source of many of those distressing skin-diseases, which we see with so much pain and disgust.

Purging after measles, therefore, is enjoined as a precautionary measure to avert its consequences; whereas in scarlet fever, purging, like bleeding, would be very wrong,—wholly inadmissible. There is in measles a congestive action along the whole course of the mucous membranes lining the alimentary canal, as well as in all other organs, which requires a stimulating action and a quicker metamorphosis of structure; and as this takes place a constant removal by purges is indispensable; whereas, in scarlet fever, the whole mucous membrane is removed by its inflammation and natural decay,—precisely as you see the external skin first burnt and then exfoliating.

I have thus compared these two diseases, step by step, in order that I might the more clearly point out their distinctive differences; and I trust now, that these two most common diseases of childhood will henceforth be thus viewed,—never ranked together; because in fact every feature they possess shows their distinct characters, and their diametrically opposite treatment, in well as diet as in anything else; scarlet fever requiring all greasy diet, as mutton broth and milk foods, which to measles would act as the rankest poisons.

As a summary to these observations on the variety and treatment of fevers of whatever kind, I observe, *first*, that those arising from disease in the arterial elements require acid, and anodyne, and opiate treatment, and towards their decline, bark, or its concentrated acting principle, quinine, and that blood should never be removed;—the indications to such treatment being invariably found in an accompanying red tongue;—secondly, that in those fevers which arise from disturbance in the central blood-tubes or capillaries, the alkaline treatment and constant support of the natural powers in bearing up against them is required, and blood should on no account be removed. In all cases, however, where fevers exist in the system and their type be measles, the alkaline treatment is called for, combined with fresh decoction of bark (*never quinine or acids*), and where the lungs show signs of *distress*, stimulant expectorants, with all remedies tending to dissolve excess of mucous secretion, and a free use of blood-letting if required; —the proper diet in this case being fresh meats broiled and roasted, not boiled, or else beef-tea;—whilst as respects the tongue, it will always in the last case be found furred, coated, loaded, dirty, and moist.

It is a peculiar law of fevers, from whatever cause they spring, that when they first arise, they are CONGESTIVE ACTIONS, and from this very fact may be quickly brought under control. Even the system itself may thus be able to throw them off through its own healthy action and perfect functional integrity. Even those of an epidemic character, from whatever miasma they arise, will be found, without exception, to have at first CONGESTIVE ACTIONS, producing functional disturbances, but still under control, as such simple conditions always are. At this stage, therefore, they come under the term of *venous* or *acid fevers*, the treatment of which is by *alkalis*. The tongue, in this general condition, will be furred and moist, though of any colour. It is from neglect or misunderstanding of these points, or from improper treatment, that they run into *arterial* fevers. The germinating of the poison in the blood takes its character from the idiosyncrasy of the individual; and thereby a longer or shorter time is required, according to the case, for the disease to arrive at a certain maturity, though it still always obeys fixed and immutable laws. They thus run into *arterial fevers*, which show, and in fact are, *alkaline conditions*—requiring the *acid treatment*.

Again, all fevers self-generated in the system, exclusively of those arising from wounds, or injuries, or miasmata, arise by the law of gradation from a first excess, or superfluity of acid above the proper predominance constituting the healthy standard; and it is in accordance with this law of gradation, that the functions of organs, at first inordinately exercised, are next so over-stimulated; and thus becoming weakened in their condition, the necessary and constant transition state of all the secretions is arrested, and chemical metamorphoses of elements ensues. A plethoric state of the blood-vessels and their contents induces a certain decomposition of their elements. Inflammatory actions are set up along the coats of their containing vessels; along the surfaces of the intestinal coverings; in the air-passages; amidst the investing membranes of the brain; along the coverings of the nerves; in fact, anywhere or everywhere:—for this self-generated poison respects no part of the internal organism whatever, as we find it affecting more or less every part in turn.

Were these first indications watched, they would always be found to assume, at first, CONGESTIVE ACTIONS,—though still within the influence of correction. Warning is then given; a dull state, quite unusual to the system, is noticed:—languid feelings, general lassitude, a desire to withdraw from ordinary companions, the recumbent position, irritability when exposed to light or noise, peevishness, chilliness, or, sometimes, a burning hot skin;—all these may be known, even by members of the ordinary household, as symptoms of sickening for fever. The remedies now are quite simple;—the disease can be, if not prevented, yet much mitigated:—but prompt action is required, for Nature will not brook delay. Combustible materials lie about, and suddenly, as a spark in powder ignites, the house of life may be in a blaze. This is no longer congestive or venous action, for arterial fever has burst upon the scene.

Now come in all those varied forms, which have been observed as the effects of this state of things, and treated as effects in a thousand ways by a thousand minds, written on by a thousand pens in a thousand books, though none have arrived at any grand truths. Read the varied history of fevers of specific character and every sort; read the condensed history of fevers in Encyclopædias, those wonderful productions of plodding, untiring industry and pedantry. Their very search after facts, and wading through libraries of authority, and their industrious condensation of matters, all show the patient zeal of scientific men. Read these, I say; and you will be rewarded for your trouble only by the contemplation of a most irregular and nondescript construction of every style of architecture from the time of Hippocrates to the present—a heavy, massive edifice, erected with wondrous pains, yet without design, or order, or system, or rules; for the subject so managed defies them all.

Every successive generation of men, too, seems to have taken pleasure in pulling parts of the old fabric down, only to reconstruct it in the same heterogeneous manner. The difficulties and intricacies of the subject have engaged the energies of youthful aspirants, and baffled the experience of age. In youth, a certain knowledge of its traditional lore is made the stepping-stone to fame and notoriety, and their arguments in favour of this or that notion are supported by a vigour which only youth can use. The laws of fever, in fact, were supposed not to be discoverable—all who attempted it being regarded as impostors seeking to throw dust into their own eyes or that of their patients. With such as these, of course, *fever is fever*, which should be left to itself—an unworthy act in so-called scientific men, who yet hesitate not to amuse their patients and friends with "a bread-pill and a little coloured water," to make them believe that science must do a something, and boast that the scientific treatment of fever has improved by their thus letting it alone.

The fevers induced by the germination of poison in the system itself, irrespective of external agencies, and which affect every part of the body in turn (though beginning or coming on as I have shown they do in congestive action), end in arterial disturbance. In such cases as these you will inevitably see the clean red-pointed and contracted tongue, or a tongue furred at one point and clean at another; which fur, at first thick and moist, will become in the end dry and hard. When the first of these characters appears, it will assume any colour, creamy, buff, yellow, dark or black; but when the tongue becomes dry it has a dark-brown brick-dust appearance.

According as certain organs are affected, so will the tongue indicate them. The whole body of it will be at one time thickly coated and furred, except the tip and edges, which will be glary red or crimson;—if the coating is moist, the red tip will show that the large intestines are taking on an inflammatory action, whilst the glary red edges, when the mind is in a wandering delirious state, show that the coverings of the brain are in the same condition. In this case you want no stethoscope to tell you that the lungs are in a highly congested state:—the root of the tongue, especially down the centre, will be black—an effect produced by the excess of carbonic acid gas coming up through the air-tubes and actually blackening the fur along those parts of the tongue which I have assigned to the lungs.

The stomach and all those parts more immediately engaged in the digestive operations are congested also.

At another time you will see the sides of the tongue moist, and the edges red and clean, though not of so glary a crimson colour, while the centre is dry and brown. The lungs are now taking on inflammatory action, and should therefore be well watched through their index—the tongue; whose fur gradually lessens, as the inflammation increases, the centres becoming red and bare. You will now find three distinct parts of the system, namely, the brain, the bronchial tubes, and the large intestines, in a state of inflammation. This is an important fact to notice, for in this case they mutually checkmate each other as skilful chess-players; and, according to circumstances, neither will allow the other precedence in the commission of evil. There is more to be feared, therefore, when one or two parts alone are in such a state, than when all three participate in the battle.

Again, you may see the whole tongue perfectly clean, as it is in scarlet fever; but you will not now recognise the same effect, because the mucous membrane has been gradually cleaned, and its surfaces have become gradually inflamed, though not in the sudden, daring way in which they are denuded in a few hours by scarlet fever. You now find a red, hot, burning skin, a flushed face, a suffused conjunctiva of the eyes, and no moisture anywhere. Organs now improperly perform their functions; the mucous membranes cease to secrete; and, as a natural result, the blood becomes thick, and small in quantity.

I say, then, that here the greatest amount of disease is confined to the arterial circulation. The bowels cannot act; for there is too scanty an amount of mucus throughout the whole alimentary canal adequately to aid their action. Intense and painful unquenchable thirst is the consequence. The spleen becomes enlarged, and sluggish in its functions; very little bile is secreted—the bitter principle is absent; and yet, as I have said in another chapter, small quantities of bitter beverage satisfy more than ten times the quantity without this bitter. Now, whether my hypothesis of the law of health be accepted or not,—whether the medical reader be disposed to allow or not my view of the spleen's office in providing bitter principle to the system,—whether he acknowledge or deny the value of my Glossological rules,—I yet think any candid person will admit that the treatment of the various classes of fevers, as here proposed, shows some method and philosophy at least in restoring the system to its normal state of health, and that blind empiricism, acting only by accident and not law, actually restores by these very same means, whenever this path is followed. Such, however, is the uncertainty of empiricism, that it as often goes wrong as right; the custom being, when it acts rightly, to ascribe it to the marvellous wisdom of the profession,—and, when it goes wrong, to the peculiarity of circumstances and idiosyncrasies. Thus, at one time, the plan does, and at another does not, succeed. The difficulty, however, is very adroitly got over by laying it all to the variety, uncertainty, and marvellously occult character of such Protean complaints as fevers, instead of its right cause—the yet undiscovered laws which regulate them—whilst the faculty are ever unwilling to confess to any faults or short-comings of their own.

Fevers, we are willing to allow, exhibit many phases; are seen to affect, in turn, every organ in the body, have been treated by every possible form of remedy, have engaged the attention of multitudes, and, in short, have baffled the intelligence of so many of our greatest practitioners, that at length people seem agreed in the conclusion that fevers are fevers, and are to be named according to any peculiar character which they exhibit. Hence we find, that in every country and climate, and in every generation for centuries past to the present time, medical men have recorded different types and symptoms; and thus the given laws regarding them in one age are not, probably, those observed in another.

The fevers of our own time are not a whit better classified; for no sooner do men begin to write or talk about them, than a perfect storm of disagreement arises among the whole medical fraternity. Yet no fever occurs, epidemic or endemic, that does not find minds, hands, and pens to record everything that has been observed,—and this rather, it would seem, for the amusement than the instruction of others. The record of the writer's opinion only is given; but this forms no guide for any one else, and for this reason, that the treatment recommended (which, I apprehend, is the only thing of consequence, after all) fails in all other hands,—plainly showing that the observation and record of a certain number of symptoms are not the only desiderata.

What is really wanted is the law and the cause; failing which, fifty industrious writers will each have their pet mode of treatment, each one condemning every other, and not one adopting any practice founded on systematic philosophical principles. Every one, in short, has found something that has acted as a panacea, and having seen a benefit arise, publishes and declares it,—a very kind and very disinterested act, no doubt, even where not appreciated, because, as I have said, such remedies fail in all other hands; and why?—for the want of a philosophic foundation.

Now, all fevers, I maintain, of whatever character, in whatever climate, at whatever time of the season, or from whatever cause, in whatever person, of whatever sex, age, or condition, can be reduced to law, and that law, when once understood, will be found very simple. They all have their commencement, progress, and retrogression, each regulated according to the state and bodily habit of the person attacked; so that the fever in one person must be treated differently to that of another, inasmuch as different organs of the body will be implicated in one from those affected in another. This difference, however, so far from impeding the law, rather confirms it. Admit, first, a law of health, whatever it may be, so as to have some starting-point for the first time in the history of medicine; admit the commencement of a fever to be a congestive action, or non-inflammatory condition; admit that medicine has a simple law for its administration, and must be given either in an acid, alkaline, or neutral form; admit that congestive actions are acid actions, inflammatory actions alkaline, and that congestions of some organs present at the same time are neutral or mixed actions. Admit that the tongue will indicate these; that in its moist state it shows the organs to be properly performing their functions, but that when it is dry all over they do not; or that, when some parts are moist and some dry, such parts show which organs perform a healthy function and which do not. Admit these few simple hypothetical laws, I say, for mere argument's sake—act upon them, and see the result.

Order will then come out of chaos. Every man's doctrine, every man's treatment, will be found to contain some truth in it. But then he is merely empirically correct; he is so only by accident, whereas, by agreeing to and acting on the simple propositions now advanced, he will find himself philosophically correct, and instead of meeting with constant failures and only accidental successes, will work on a far sounder basis, and find cure in most cases a certainty.

Laws are here to be learned. Watch Nature! Bleeding may cause the patient suddenly to sink. Why? Nature always locks up the bowels in fever. Why? If you fail to see wisdom in this, and rashly venture to unlock them, which may be done after some trouble, delirium will follow. To do so, then, betokens want of observation. If the patient is strong, opiates may be freely used; by which means, after twenty-four or forty-eight hours, a steady condition of the body may be produced, and the patient become altogether better. Why? Yet some one may say, it is prejudicial to keep the patient with his bowels confined. Nature, I repeat, wills it so; but *man* will not allow it, and therefore again unlocks them from his very lack of knowledge of a great law. This time, however, he runs great risk of unlocking the door of life as well, and thus causing the patient's death. Should this happen, the unhappy victim is, *of course*, said to have died of fever, having had all that skill and empiricism could do for him. This I deny not;—*he died empirically, secundum artem.*

When fever has put on inflammatory action, that inflammation is not confined solely to one part; as, for instance, it never exists in the large intestines without affecting also the coverings of the brain. These two always go together. It is impossible, then, I maintain, for any but the most experienced in fevers to discover this, if Glossological indices are not part and parcel of their study; whereas a person with far less practical knowledge has only to look to the glary red edges and tip of the tongue to be informed of the fact, and to know that if he gives aperients, he but increases the inflammation by irritating the large intestines, already irritated too much; but, further, if there be simple incoherency, he will aggravate that symptom, and bring on delirium. The next useful symptom is the frontal or forehead headache, proving disturbance in the large intestines; and secondly, the acute pains in the temples, or temporal headache, indicating inflammation of the brain in its coverings.

The next inflammations will occur in the air-tubes of the lungs, affecting not only these, but the external membrane, the pleura; so that you not only have bronchitis, but pleurisy. This state of the lungs, too, when the arterial blood is in a feverish condition, will often bring on the most dangerous form of disease that the lungs can have—viz. inflammation of their substance; that is, what is called *pneumonia*. When the patient is suffering from intense heat of the abdomen, there will be inflammation to a limited extent in the external covering of the bowels, the peritoneum—in contradistinction to inflammation of the internal or mucous membrane; in which last case the abdomen will not be tender or painful to the pressure of the hand. This state of the system is shown by the tongue being red down the centre, and furred on each side, even to the edges and tip.

Again, when the lining membranes of the arteries themselves are in a state of inflammation, you will find the whole surface of the mucous membrane of the alimentary canal also inflamed. This you will detect by the whole tongue being red and contracted. You may naturally marvel at these things; but I tell you that they are all regulated by simple laws—laws which have antagonistic actions, leading to a species of division in the system, which thus causes a division of the disease. For instance, the two opposing powers, each striving for mastery in the system, namely, the serous inflammation of the brain and mucous membranous inflammation of the large intestines, actually hold each other in check, neither yielding to the other; yet, singular as it may appear, they each contribute to each other's intensity of action, though, if either yields, the other yields as well; and this, owing to that great law which Glossology has alone pointed out the law of the fouling and cleaning of the tongue in disease.

The tip and edges are the last parts of the tongue to become affected in disease;—by which I mean that, as the brain and large intestines are the last parts of the body diseased in any general disturbance, so, in the retrocession of disease, the tip and edges of the tongue are the first parts that become free, or, in other words, the large intestines and the brain receive the first great immunity from disease, and are the first to recover, when all parts are affected. Thus, then, in arterial fever the most alarming symptoms arise, when these two parts become distinctive seats of inflammation.

Again, the antagonistic action is seen in the mucous membranous inflammation of the air-tubes of the lungs, opposed by the serous inflammation of their external coverings, and the external covering of the bowels. Each of these contributes to the other's power and intensity; but when either yields, the other is disposed to do so too; which fact is proved by the red and dry appearance of the very centre of the tongue becoming moist, and the distressed and anxious countenance becoming more placid, whilst the tenderness upon pressure of the abdomen is considerably reduced. In these conditions, you will not find so much disturbance in the head, which, though hot in common with all other parts, will show very little wandering, incoherency, or delirium, and will seldom ache in any part, whether the forehead, temples, or elsewhere.

Once more,—when the serous coats of the arteries are inflamed, a greater antagonistic action is required by Nature to oppose this increased action, and you will find that the whole mucous membrane of the alimentary canal is inflamed. This will be seen by the tongue being entirely dry and red, and when protruded, very pointed and contracted. The points that first yield here are those deeper seated, namely, the serous coats of the arteries. This action renders the blood less thick or fibrinous, makes it flow more readily, and, consequently, allows all organs a freer action, under which circumstances they secrete freely; in fact, their functions are somewhat restored, and better performed. The tongue now becomes less contracted, and more moist. If you want a further proof of the condition of the above contending actions, you will find it in the laws of headaches. The whole head will be affected—the back part as well as the front and sides, but not so much on the top or the temples. You will have then one of those forms which cannot be better expressed than by the term "*splitting headache.*" All these forms of fever, I say, result from derangement in the arterial system.

Very different from all these are the "*venous fevers,*" or those which have their origin in the veins. They constitute the very opposite to the arterial fevers, because the latter are, *par excellence,* inflammatory; the former, congestive or non-inflammatory. The arterial, in fact, is the aggravated essence of the venous, because the congestive is the stepping-stone for the inflammatory; but it never happens that the inflammatory descends to the congestive—and for this reason, that, from the recommencement of healthy action after the inflammation subsides, Nature acts in a manner specially suited to the occasion; for, after such violence done, when even the predominance of acid necessary to sustain health in her normal condition has, as it were, flown away, she recommences of herself a return to the normal standard of health, according to the hypothesis I have laid down.

To illustrate the frequent rapidity of her actions, I may mention those two opposite fevers, "the venous eruptive fever, or measles," and the "arterial eruptive, or scarlet fever." Scarlet fever will, as I have frequently observed, supervene upon measles at a very short interval on the same subject; but not so will measles follow scarlet fever. I have, indeed, seen this occur occasionally; but this by no means upsets my principles or my theories. What we call a freak of Nature, is not to be looked upon as normal, but unusual and unaccountable. Nature sometimes makes monstrosities; does many other strange things in opposition to her usual proceedings. This, then, is entirely beside the question.

Such are, then, some of the peculiar states of the body in fever; and though it seems almost impossible to educe a law from the many symptons arising in the system, yet the existence of that law is proved by the mode of treatment; so that, if it cannot be discovered in one way, it may in another.

The first and lowest condition of fevers is that of children, in whom congestion causes febrile action,—often very speedily relieved, though not unfrequently continuing for some time. The fever apparently rises to its height in a few hours; from which, however, either a natural vomit or an emetic will in a few hours perfectly relieve them. The tongue in these cases is always furred. The circulation of infants is very rapid, and their systems appear unable to retain any chemical material adverse to health; therefore, infant life by its own effort opposes disease of a violent character, and throws it off quickly when it attacks them. The simplest remedies in this case are unquestionably the best; but I have no hesitation in saying, that, if their diseases continue beyond a certain limit, much of this is due to the early use of mercurials and pernicious drugs.

Now, if we look philosophically on the ordinary conditions of children and their natural tendency to health, we come to this conclusion, namely, that when they are overfed and overpampered, mild purgatives and alteratives are the most proper remedies. Children, indeed, get nine-tenths of their diseases from this cause. On the other hand, when starved or neglected, they have not the power to set up inflammatory actions to sustain vitality, and they waste and die. All their congestive actions which produce fæces are actually apoplectic tendencies. They require, therefore, the corrective agency of alkalis, such as magnesia, soda, potash, and ipecacuanha; because in these, the primary elements of disease are in the veins, this *return blood* being too thick and of too consistent a character. Hence, the veins are impeded in their action throughout the body.

Infants, therefore, are subject in the first year of their lives to much congestive action, often increasing even to the convulsive stages, which, in fact, are infant apoplexies; and though they experience great heat, amounting to fever, it is very rarely attended with dry or red tongues; so that neither thirst distresses them, nor inflammation of structure occurs. All their organs still perform their due functions even to excess of action,—which they could not do, if the *pabulum vitæ* imparted to the organs by the arterial blood were the source of mischief. Children, from these causes, may be even leeched or bled, the same as you would bleed in the reaction of adult apoplexies, and you may safely purge them too, thus causing great relief:—in short, by these means alone you may often remove their fevers. But feverish actions may occur in the dry mucous membrane during teething; in which case that membrane should be induced to secrete by ipecacuanha, or any other means except the mercurial; when the fever will presently disappear. From one to ten or twelve years of age, how little fever is seen except scarlet fever!

My firm conviction indeed, is, that even fever will ultimately be rare, or be banished from the list of infantile and youthful complaints; whereas measles will always remain incidental to this climate, owing to its many and varied changes of atmosphere; for it is totally impossible to prevent a departure from the law of health, and in this condition the lungs become affected. Excepting, therefore, scarlet fever, up to the dawn of manhood, children are not subject so much to the inflammatory as the congestive fevers.

In all fever cases from sudden injuries, I would suggest, what I have for years practised in all these cases, the speedy administration of a bitter medicine for the thirst induced by these accidents; and for this purpose, that every soldier be supplied with a small portion of the best gentian root, to be carried by him in a convenient place; and more especially this should be seen to before going into action, so that, when wounded, he may, by his own assistance, if able, or by a comrade if he is not, take a piece of this and chew it. It would not only serve him in the place of water, if the latter is not attainable, but would make a small quantity of water of double or treble its value. It would, in fact, supply that element in the system which is temporally deficient; for if you can keep the system free from thirst, you keep it free from fever.

Further than this, persistence in the use of an acid and bitter combined will overcome the curse of drunkenness—nay, even cure the propensity; and surely the prevention of this morbid disposition in any one would be a great boon. How many good and excellent men, both in the army and navy, have disgraced themselves and the services they belong to by drink! Surely, then, it would be kinder to cure than to punish them. Let any man who has this failing, then, be put under this treatment; for it is easy of application, will save the man himself, and will prevent, moreover, the contagiousness of his example. In certain conditions, too, where cavalry are acting, and supplies of water are small, a little gentian root cut up and mixed with the corn would be serviceable and grateful to the horses.

The congestive or venous fevers cannot be considered inflammatory; because thirst is so easily overcome by giving the system that in which it is deficient. I have no doubt that the empirical use of bark has gained its celebrity from these facts, and although quinine is now generally substituted, yet its true use cannot be said to be properly understood; because it is given too universally. Thus, in the arterial fevers, where acids are the principal remedial agents, quinine, which acids dissolve, may be added thereto; but, be assured, the acid is here the true curative agent, and the quinine or bitter is only added as a substitute for that in which the system is deficient. Now, in the venous fevers, the alkalis combined with a bitter are the true means to the end, as I have frequently observed; so that Glossology gives a power over disease hitherto unthought of. In consultation I have frequently had occasion to point this out, and simply ordered decoction of bark and soda in lieu of quinine and acid.

The varied forms of intermittent and remittent fevers, tertian or quartan agues, are only so many forms of venous fever. They are seldom attended by inflammatory conditions of the organs, coats of vessels, or membranes; though they assume bastard forms and many anomalous conditions of the arterial and venous character; and I am disposed for this very reason to call these the NEUTRAL FEVERS. Organs may not secrete; therefore some functional disturbance ensues, attended with thirst and a dry tongue,—*ergo*, they are ARTERIAL FEVERS;

anon, in a few hours, the organs do secrete, functional integrity is restored, the fever is less as well as the thirst, and the tongue moist,—*ergo*, they are VENOUS FEVERS. Thus you see the very fact of the treatment leads to the philosophy of the cause, which is proved by the state of the general system as indicated by the tongue. It is that organ, be sure, which will ultimately throw more light upon the philosophy of medicine, and raise it from the most uncertain of empirical arts to the dignity of a science as unerring as it is now uncertain.

You, my unprofessional reader, who cannot enter into the minute details of one of the most difficult problems of our art, must be content to follow only simple directions. You may one day be—as colonists, emigrants, wanderers—isolated beings, far distant from home, or the haunts of science, or medical aid; and on this account you must be guided by a few short and simple rules. Those I have given here will serve you well. Fever, of whatever kind, is only fever to you. Its laws, its varied forms, its Protean changes, you cannot be supposed to understand, neither do you care to do so. All you want of it yourself, is to get well; or, if it is your friend or relative, your whole anxiety is to see him get well.

All you have to do, then, is to look at the tongue, and give those remedies which that indicates. If the patient is burning hot, sponge well and keep him cool; if he is cold, as he sometimes will be, cover him up till reaction takes place, and then do the opposite. If he be cold in the extremities, which he may be, and his head be burning hot, apply warmth to the one part and cold to the other, in order to equalise the temperature all over the body.

The recumbent position in bed, and in a darkened room, will be found the most grateful place the patient can occupy; for there is always great debility in the spine, when fever sets in. Nay, though a paroxysm of delirium may make him so strong as to require more than two stronger men to hold him, nevertheless, in a few minutes, he may be as powerless as a child—not able even to help himself, nor even to stand. Free ventilation is necessary; but the light excites him. Neither should the air of the room be too dry, else the lungs may become affected from the want of moisture. In short, the most learned physician in the world can but do for you what you, with a little knowledge and observation, may do for yourself in such emergencies, when you have not the benefit of his counsel, attention, and advice.

Inflammation in local parts may be called *local fever*; and it may be confined to those parts by proper treatment, or, on the other hand, aggravated and made to spread through the system by sympathetic action. The self-generated and local fever called "*erysipelas*," or "Saint Anthony's fire," may be cited as an instance of this kind. This is peculiar to parts immediately below the first skin. Erysipelas arises mostly from a depraved state of the blood, which contains a morbid poison engendered by imperfect nutrition on the one hand, and on the other by imperfect appropriation of even the best diet in the world. It is decidedly hereditary, and in such cases is produced by the slightest causes—as indigestion, cold, or any irregularity of diet; and a system thus affected is seldom or ever free from it.

When erysipelas is first generated in a non-hereditary state of blood, great care should be taken to eradicate it, if possible. When present, it is greatly aggravated by contact with the air, like its artificial prototype the burn or scald; and hence, like them, it should be treated with flour—not that flour is curative, but because it perfectly excludes the air; and this is a reason why we treat it also with a darkened room. You will very seldom see true erysipelas with a *red tongue.* It mostly comes on with a very furred tongue, especially if it be severe. When it comes on the skin, it is first a blush, and if not immediately protected from the air, causes blebs like an artificial burn, and the skin peels off. The system must here be supported on alkaline diet, alkaline medicines being the remedies required.

Before quitting this subject, it is necessary that a few words be said upon the mucous and serous membranous inflammations which have certain febrile actions attached to them. I have pointed out the difference between these membranes, namely, that mucous membranes are always exposed to the action of the atmospheric air, and that serous membranes are not. The want of atmospheric action, indeed, on mucous membranes soon produces disease on them; while any action of it on serous membranes causes inflammation, such as pleurisies and peritonitis. Inflammations of the mucous membranes, whether of the lungs, the stomach, or the bowels, are attended with very little pain—never with pain of an acute character, neither pain on pressure, but a sense of weight, heat, and uneasiness, after taking anything; whereas in inflammations of the serous membranes, sharp, lancinating, and even excruciating pains are present, becoming aggravated when the parts over which they occur are pressed. Perhaps no persons are more subject to pleurisies than servant-girls, who are thoughtless and careless, often uncleanly in their persons, however finely they may be externally decorated. This arises from their avocations, which often throw them into violent heats and perspirations that are suddenly checked and renewed several times a day:—these changes cause the disease. Air shut up in the remotest bronchial or air-tubes penetrates through the lung, thus setting up an inflammation.

Inflammation of the peritoneum, called "*peritonitis*," is produced from the same cause, namely, air passing through the coats of the bowels to their external membranes. Inflammations of the mucous membrane of the bowels cause feverish actions, and frequently *ulcerations;* and I have seen cases where the ulcerations in the large intestines have burst with fatal effects, and the intestines been found riddled like a colander, without either fever or pain during life. There again, the tongue is a great guide, if it were but properly studied. In both inflammations, whether of mucous or serous membranes, acids, anodynes, and opiates are the proper remedies. In affections of mucous membranes they should be used constantly, though sparingly; in those of serous membranes, doubly and boldly. And when so used, be assured they will soon bring the disease under control.

To conclude this chapter—it is the current doctrine of the day, the vulgar error, to depend upon calomel and mercury as the sheet-anchor in the treatment of inflammations of serous membranes. Indoctrinated in this, I once believed it; but I now see the practice is false,—false as a thousand other absurdities practised in obedience to the rules of schools and popular prejudices. Give it not! Such treatment leaves behind greater curses, more serious and permanent injuries, than the diseases the doctors fancy it will cure. Calomel given in bulk for inflammation of the serous membranes, will cause inflammation of the mucous; and thus it only changes the seat of the disease, without removing it from the system.

This remedy, I say, is a thousand times worse than the disease itself, and should be avoided like the poisons of a Borgia or a Medicis. In inflammations of the mucous membranes, its use only aggravates and irritates: so that, when you consider the close proximity of these two membranes and their exquisite sympathy the one with the other, and the causes which produce serous inflammations, naturally, you will judge why death ensues; for if the inflammation of the one is arrested or cured, the other suffers so extensively, that if you fall not by the one, you will by the other. Be bold, then, in your use of acids, as well as opiates; and you will speedily succeed in causing a return to a healthy standard, without injuring the system itself by remedies of dangerous application,—as is too often the case.

"Extremes always meet," is a proverb, an expression, a saying, or an axiom, as the case may be, or according to the sense in which it is meant or understood. The miserable poverty-stricken, half-starved wretch, lank and lean with hunger, in a damp cellar, cheerless, cold, and poorly clad, whose very vitals are preying on themselves, is liable to attacks of fever, as well as the over-pampered rich. Here is an illustration, and a painful one too, of the axiom above, as well as of Nature's efforts to sustain a fabric,—and that too, when no beneficial end to the being itself is answered.

Here law and cause introduce to our notice and educated senses, powers that exhibit themselves and force us to reflection. The reparation of a simple injury, even the puncture of a thorn in gathering a rose, will excite inflammatory action for the purpose of repairing even so very small a damage. The larger wound shows greater action:—greater excess of the materials of repair is thrown out of the system; and while any little hardness which the join, the union, or the mending leaves, becomes absorbed by vessels expressly provided to remove these chips and shavings of Nature's carpentry.

How much more then is this the case with that life, with which she will not part until she is obliged! This, in short, is the link and very essence of herself. Wherever she can gather power she does, and by the very same means she absorbs every element for that purpose; first those which she can best and most speedily appropriate—namely, the fat and all the most easily obtainable constituents for her purpose. When this is done, she proceeds to act on all the softer tissues, setting the very elements of the vital fluids in opposition to each other to gather strength, and then exciting the lining membranes of the tubes, that carry or convey them, into a state of inflammation. Thus she gathers power, robbing whatever she can from any source,—converting, by decomposition and appropriation, her stolen treasures, to sustain herself and the fabric wherein she dwells,—acting on penury as she would on opulence, and on leanness as she would on plethora; thus showing in everything, gradation of purpose, in curing disease or supporting life.

This is shown after profuse diarrhœas and fluxes, that have abstracted from the blood all its vital elements. The only remedies to reduce the burning heat and fever consequent on this state are acids, opiates, bitters, port wine, and other stimulants,—which furnish the elements that Nature in her own self-dependence had robbed her own stores to supply. The system in this state is in the same condition as that of the poor wretch dying from starvation, and kept alive only by those very powers, which are exhausting themselves hourly. Science, reading these things aright, can alone furnish that aid to Nature, which she so imperatively and justly calls for.

# CHAPTER VII.

## CHOLERA, DIARRHŒA, AND DYSENTERY.

General observations—Various imputed causes of cholera, and its nature—Cholera and sweating-sickness compared—Various forms of cholera; dry cholera rare—Principles of treatment to be based on correct Glossology—Congestive and inflammatory cholera distinguished; their respective remedies—Appearances of the tongue an unerring guide to each—Simplicity in prescribing medicines recommended—The great object to stop retching and purging—After-purging condemned, and why?—Sloppy diet reprobated, except in inflammation of the mucous membrane—Diet after congestive cholera—Secretion of the salivary glands to be encouraged—Frontal headache an indication for laxatives—Diarrhœa; its origin, progress, and effects—Sympathetic actions of mucous membranes—Emetics recommended—Calomel condemned—Spasmodic cholera—Collapse; its seat being *the Solar-plexus*—Galvanism valuable as a last resource—Dysentery allied to cholera—Distinction between congestive and inflammatory dysentery—Indications in each; their symptoms, progress, and treatment—Medicaments in dysentery, and the philosophy of their application—The free use of nitrous acid recommended—General remarks.

We have had some experience, it may well be said, of this now naturalised disease. But be this as it may, no definite conclusion has been arrived at, even by the combined efforts of the whole medical profession, as to its cause or manner of treatment. Under these circumstances I shall speak of it solely from my own observations.

With reference to this, as to many other obscure diseases, there exists, as we may well suppose, great diversity of opinions. Writing, therefore, for the million, and not for the profession, except as an integral part of them, my object shall be to reduce everything, as far as possible, to simple cause and effect, both as regards the disease itself and the remedies most suitable for its cure. As cholera is an enemy lying in wait to destroy life, you should at least be able to offer some defence against its attacks, before the regular army comes to your relief; for when it does arrive, either in single file or in force, the tactics or strategy of this relieving force may very probably be at fault, owing to much division of opinion in its counsels; so that, before any unanimity can be arrived at, the castle of life will have been stormed, taken, and demolished.

First, then, as to the causes of cholera: some say it arises from a morbid poison in the blood; others, that it is a sudden shock to the nervous system; while others, again, believe it to be a fermentation of the fluids and solids, reducing the latter to the former as fast as such a change can take place. Some, again, imagine it to arise from parasitical formations like fungi, only to be seen by the microscope. A fifth party say, that it proceeds from malaria, or the bad air of the locality in which the disease is prevalent; and a sixth allege it to be caused by eating raw fruit or other unwholesome food; nor can there be any doubt, that some of the evils of which we complain may be ascribed to such causes, though certainly not to the extent imagined; because we are to look farther back, to the general habits of the patient.

In articles of diet, many may take with impunity what others cannot, and the same person may take at one time what he cannot at another. It is too much the fashion to impute diseases to these immediate causes; whereas the air or the food may have only had the effect of producing or hastening that which would inevitably have arrived from other causes as well as this. Some, again, allege that it arises from contagion or infection. In fact, nothing definite being arrived at, it may happen that one or other of all these causes may operate at certain times, and be separately or conjointly the exciting causes of the disease, especially when it occurs in persons of loose, bad habits, induced by excess of drinking and the consequent neglect of more solid food. In poor, ill-fed habits this may be caused by poverty; for poverty implies a deficiency of everything—of meat, drink, clothing, and pure air; for poverty dwells in holes and corners, and sadly lacks all the essentials of health. Yet, how are we to account for this disease getting into the houses of the rich, where every comfort exists? Philosophy and science in their keenest researches, conducted by the aid of unparalleled microscopic powers of vision, are here completely baffled—baffled as much in accounting for the cause as in varying the treatment.

Such being the internal and external presumed causes of cholera, it is only fair that we should now inquire what this said cholera is, and what is the precise meaning of the term. The general notion is, that it is an inordinate action, a diseased excitement, prevailing throughout the alimentary canal, and indicated by constant purging and retching. It may commence with a simple diarrhœa, and proceed gradually onwards to profuse action, ending in collapse and death. Again, it may come on at once with profuse diarrhœa without retching; or it may be accompanied by retching and general coldness of the extremities, attended with a certain amount of pain at the pit of the stomach, and so end in collapse.

Now, cholera appears to me to be the exact opposite of a disease that once existed and inflicted most dreadful ravages, but which is now extinct; I mean the *sweating-sickness*, in which all the fluids of the body were attracted by a sort of centrifugal force to the surfaces, inducing a constant transformation of the solids into fluids, and rapidly exhausting the patient,—who died a collapsed skeleton. In cholera, on the other hand, this action appears reversed; for here all the fluids seem to leave the surfaces, gravitating towards the centres, making the alimentary canal their great natural outlet, the change of solids into fluids going on as rapidly as in the former case, and, if not arrested, soon terminating in death from exhaustion and a species of internal sweating.

As regards the meaning of the word, cholera means originally *a flow of bile;* and this is the common opinion as to the nature of the disease. For my part, however, I do not believe that the bile has anything more to do with it than any other of the secretions or excretions of the body. This much, at all events, is certain,—that there is no more bilious action in the excretions of cholera than in those of the sweating-sickness; for, in point of fact, the latter disease has as much claim to be called cholera, in this acceptation of the term, as the cholera, that we now know, speak, and treat of, has to be called a pure bilious or liver disease. This term, nevertheless, may do well enough for want of a better to characterise it, and so may continue to be used, inasmuch as every one seems to understand its meaning. For my own part, I should be inclined to call it *an internal sweating-sickness,*—the alimentary canal being here the part, which all the fluids present in the body, or capable of being created by any sudden metamorphosis of solids, have a disposition to gravitate to, and evacuate.

Having said thus much as to the general nature of this formidable disease, my present object is to point out what means will best effect the purpose of arresting the above-mentioned disposition, so as to place the treatment upon a surer basis; for hitherto uncertainty and error have most assuredly frustrated the very best intentions. In the first place, the merest novice must at once see, that there are several varieties of this disease; else, why do opposite remedies succeed at one time and fail at another—not, it is true, with the same individual, but in different systems—though opposite remedies may and sometimes do succeed in the same individual at different times? For instance, if chalk and the alkalis succeed in one case and fail in another; if, in other cases, the acids act with equal uncertainty; and if, thirdly, the stimulants prove beneficial at one time and injure at another, it surely requires only the simplest observation to discriminate between their use, though it may be too late, in any case already under treatment, to alter it; because, when one course is entered on, whatever it be, it must generally be carried out with such a display of patience, at least, as may be requisite to give the remedies a fair chance.

I have only seen two cases that could fairly be termed *dry cholera,*—in which spasm and collapse took place without either vomiting or purging, and which, nevertheless, were as fatal in their terminations and as perfect in their symptoms as any other, with these exceptions. If we pause to ask ourselves a few simple questions, the following are those which will occur. Is science never to treat these differences *unerringly?* Is the practice of medicine always to remain an art and a mystery, so that nothing is to be given *with certainty?* Is a remedy first to be experimentally administered, before we find it to be right by the empirical process alone, and if not, then to be changed for some other—life in the mean time being imperilled, sometimes lost, by the delay? In many instances this is really the case, especially in cholera. These questions, then, are of momentous interest; and I can prove that, however much the tongue may be neglected by the profession in general, it will answer these questions satisfactorily, and at once point to the proper mode of treatment. Let me, therefore, assure the million,—the general public for whom I write, and who have no prejudices on this point to combat,—that by a careful examination of that organ alone they will be enabled to form from its indications golden and unerring rules for their guidance, as respects the treatment of this disease.

The following hints will be found worthy of the reader's attention. If the tongue be at all furred or coated, or, without being so, is white, pale, and flabby when the diarrhœa comes on, then an acid condition of the system prevails, and the mucous membranes are shown to be in a state of congestion. These facts, too, point out the proper remedies to be given. Stimulants, freely and boldly used, are required to rouse the dormant actions in the system: while to correct the superfluity of acid, prepared chalk, which is an alkali, is the most fitting remedy, not only to neutralise acidity, but to solidify the fluids, and thus stop the purging or looseness. Here also is the secret, why powdered charcoal, powdered oyster-shells, and bold doses of the carbonate of soda and such-like remedies, succeed. Now, on the other hand, take an apparently similar case of diarrhœa or looseness, but with a totally opposite appearance of the tongue,—that is, when it is perfectly clean and red, or approaches a dry condition, especially down the centre and at the tip, and has a contracted shape when protruded. This at once informs you, that there is no acidity in the system, but that the mucous membranes of the alimentary canal are in an inflamed condition and consequently in an alkaline state—the very reverse of the previous one. It requires, then, no great amount of knowledge to see that the very opposite remedies are those called for—namely, the acids, combined, if need be, with opiates and narcotics, stimulants of any kind being here to the highest degree pernicious. In fact, if you do but keep in view these two varieties of diagnosis, you have an unerring guide to treatment; and you may well afford to smile at the Quixotism of the Profession, one-half of whom condemn the use of stimulants and alkalis, the other half that of acids and opiates—and both without knowing why.

According to the indications of the tongue, then, as above described, must be the treatment, whether alkaline and stimulant, or acid and narcotic; but in either case the remedies must be administered promptly and upon principle; for you may be fully certain, that if in the case of a white or furred tongue you give acids, or, on the other hand, give alkalis and stimulants to a patient with a red tongue, you will beyond all doubt completely fail, and that if the patient should perchance recover, he will do so, not owing to, but in spite of, your injudicious treatment.

Nevertheless, the greatest possible care must always be used in administering medicines; for this is a matter of paramount importance, where the stomach is in so extremely irritable a condition. I regret to say, however, that it is now a very common fashion with doctors in treating cholera (for fashion prevails quite as much in medicine as in millinery, and knows no bounds to its absurdities) to give many incongruous things together, as cinnamon, peppermint, spearmint, catechu, and a host of others besides. This is, to say the least of it, a very thoughtless practice; for when the stomach is irritable, the base of a good mixture is marred by the flavours introduced into it, and, instead of being kindly received, is hastily rejected, thus only increasing the irritation.

There is no disease, in fact, in which greater care is required than in cholera and irritations of the stomach to administer remedies as nearly as possible tasteless, or at all events not nauseous. When chalk, therefore, is to be administered—as it should be when the tongue is furred or pale—it should be given simply mixed in plain water to the consistence of thick cream, and continued every hour or after each evacuation, until the bowels are quieted. In cases where pain is present, opium should be given, and in a crude state—the best form being one grain of the powder made into a pill with a drop or two of rectified spirit, only sufficient water being used to convey it down the throat. Here the taste is in no degree affected, there being nothing to nauseate; whereas the opium gets quickly dissolved in the stomach and quiets the system gradually. The same course should be adopted, when the acids are given in case of a red tongue: they should be in a pure or simply diluted state, without any flavouring or other disgusting compounds.

The great object, as it seems to me, in the treatment of cholera, is in any case to stop the retching and purging as soon as possible at whatever sacrifice; though I am well aware, there are some who positively deny this position. Another error, too, that follows on that last mentioned, is above all things to be avoided, though very generally, as well as most unphilosophically, persisted-in by the profession, and believed with infinite credulity by the public,—namely, the administration of a laxative some twenty hours or so after the purging has ceased and the bowels become quiet. For what earthly purpose this is done, it were difficult to say; unless it be to satisfy a silly notion, that the bowels must not be allowed to continue inactive and locked up. The result of course is, that the purging and irritation of the mucous membranes return, and the patient suffers a relapse—perhaps even falls a victim to this vicious practice. In fact, lives upon lives have been sacrificed to this error alone.

Now, such treatment as this is the very acme of absurdity. It were surely far better to leave well alone, and let Nature take her course; for this is the policy dictated alike by common sense, sound judgment, and true philosophy. Let the reader but reflect for a moment, and he will see that in every case of cholera or diarrhœa the looseness or purging has always run a certain course, before a remedy is thought of; because in some cases, as in robust persons, this action is simply an effort of Nature to expel some offending substances from the alimentary canal,

> And purge it to a sound and pristine health.

Such action, therefore, may tend rather to the benefit of the patient than the reverse; but when it is found to continue and to produce serious, nay, even prostrating results on the strength of the patient, then comes the need of a prompt and speedy remedy, as the purging must be stopped by all and any means as soon as possible. This, then, having happened, what is there left in the system, I would ask? or what amount of nourishment can have been taken in the interval under such circumstances to render the second and artificial purging necessary? The very law I have propounded in another part of this work—namely, that a certain amount of fœcal matter is ever to be found in the colon or great intestine during health—is of itself quite sufficient to justify my view of the question; and I would by all means recommend the reader in such a case to use his own common sense, and if Nature wishes to be quiet, leave her so, even though the bowels should be locked up for a week; because a return of the diarrhœa may be the result of administering an aperient. In short,—whether the cholera be of the congestive or inflammatory kind, to be treated by an acid or an alkali,—the first great object is to arrest the action of the bowels and relieve pain.

Next follows the treatment by diet; and here again vulgar error prescribes slops;—which, in fact, is nothing but adding slops to slops. The bowels have already shown too sloppy a condition, and by acting thus you only make them more so. Be guided in this, then, by the simple dictates of reason. Now, presuming the cholera to have happened in an inflammatory condition of the mucous membranes of the bowels, as indicated by the red tongue (which suggests the need of acids and opiates), then the diet should be thick arrowroot, or sapid, soft substances, made with milk, and taken cold, as blancmange, tapioca, sago, light *boiled* meats, broths, and such like messes, because the mucous membranes require the salve of such diet as much as the external skin does for an abrasion, a scald, or a burn. There is also another important reason for such dieting—namely, that a very considerable time must often elapse before the mucous membrane can bear any solid fœcal matter to lodge on its surface, precisely as you cannot bear anything to touch an abraded surface externally; and, although there be no actual pain, as there seldom is in these inflammations, the bowels are, nevertheless, in an extremely irritable state, so that some time often elapses, before a true healing of this membrane can take place. The result of all this is, that small actions of the bowels are sure to happen; and hence no aggregation of fœcal matter occurs to make any thing like a solid stuffing for the mechanical uses of the colon, or large intestines. It is necessary, therefore, to continue the use of acids and opiates till the completion of the cure.

Let us next consider the opposite case—that of the acid or congestive cholera. The system has here been thoroughly emptied by many actions on the bowels; but yet, as the mucous membrane remains uninflamed, it soon becomes capable of retaining solid matter. Here slops only add to the evil. The diet should be a nicely-done mutton-chop, or a slice off a roasted joint; not that too much should be taken, but that all the glands should be as quickly as possible brought into play. The act of mastication, if well performed, will effect this; but should the stomach be too delicate for all that is masticated to be swallowed, let every alternate mouthful be rejected after taking from it all its nourishment. This will often relieve the urgent symptom of thirst; for this action is the natural consequence of the fact, that many fluid secretions—the bile included—have been discharged from the body, by either vomiting or purging; —and, as a matter of course, the bitter principle also is carried away too quickly. Here, then, you find the law in force, that the system is as dependent on what it makes itself as on what it receives, the object of masticating a piece of juicy, fresh-cooked meat being to excite all the salivary glands;—the secretions of which, after mixing with the meat, enter the stomach, and supply that in which it was before deficient. Let it be recollected, too, that the new saliva here made is an alkali, the fresh meat an alkali, the chalk an alkali—all used for the purpose of correcting a superfluity of the primary acids in the system.

There is another end also to be attained by the remedies and régime that I have here recommended, and which I have long practised;—which is, that in great irritability of the stomach, when it can take nothing without its being instantly rejected or producing hiccough, and notwithstanding the application of mustard-plaisters on the pit of the stomach, and every conceivable remedial agent to boot, the simple act of masticating a piece of juicy meat, and spitting it out again, only swallowing the saliva and the juice gained from the meat, will often allay the most painful spasms of retching or hiccough. And this, you see, is the simple effect of making use of the curative elements of the body itself.

As to the treatment of thirst, I have already mentioned one way of allaying it—by bitters; but as excess of fluid is inadmissible, and too sloppy for the system when in the loose state we are now speaking of, let the mouth be constantly washed and gargled with pure cold water, which is, of course, to be spat out again. A drop or two may, perhaps, find its way into the gullet, where it can do no harm, and this will keep the mouth and throat moist. This great end having been once accomplished by a compliance with these simple instructions, quietly wait for Nature to point out when the bowels are to be opened,—presuming always that, after excess of action, they have been for a given time kept quiet by your remedies, whether for a few days or a week, as the case may be.

The indication that Nature desires a change is beautifully shown by the advent of a *headache across the forehead.* This is your best, your safest, your unerring guide.* This symptom will show, that either a gentle laxative is proper, or, should that be inexpedient, a warm-water enema, merely to empty the rectum; for the first fœcal discharge will soon be followed by other natural actions. The sympathetic action of the colon being thus restored, the fœcal matter will obey its law of progression downwards; and by these gentle measures you will gradually succeed in restoring the bowels to a healthy state. Now, all these are conditions and circumstances under which cholera is manageable, and they fortunately include the large majority of cases. Attention to warmth, in all its appliances, is a rule absolute; as without it there is no safety, and for this reason, that the determination of the fluids is from the surfaces towards the centres:—and hence it follows, that the surfaces should be artificially kept at a proper temperature, and, as far as possible, a proper balance maintained between them.* This being done, good results are sure to follow.

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* See further, chapter on Headaches; and also that on Fevers, pp. 131—162.

I may here profitably mention that in all inordinate actions of the bowels, such as diarrhœa, purging, looseness, or vomiting of whatever kind, from whatever cause, or to whatever extent, in all these cases the mucous membranes of the whole alimentary canal, from one end to the other, may always be considered in an irritable state; and whenever this happens, a train of symptoms is set up, which, in their various divisions, come under the denomination of sympathetic actions,—nor must these ever be lost sight of. These, indeed, are so manifest to the close observer, in their different phases, that when the facts are studied, they form a key for the understanding of many points, that otherwise might have been termed occult or mysterious.

A diarrhœa, or looseness, may arise solely in the large intestines, or may be brought on by an irritating purging medicine. It may occur, also, in the small intestines, from irritability, as we see it in chylous stools; or it may be caused by a want of nervous power, that leads to an inertness or inability of the absorbents to take up the nourishing matter contained in this intestine. Again, the diarrhœa may arise in the duodenum, the first receptacle below the stomach, causing true bilious diarrhœa, that upsets every thing; or, lastly, the irritation may arise in the stomach, when spontaneous vomiting will be the immediate result.

Having thus gone upwards, we shall next proceed gradually downwards, showing, as we do so, a few facts respecting what are called *sympathies*. All these irritations will arise from one of three causes—the congestive or acid actions, inflammatory or alkaline actions, or actions produced by irritating diet or medicine. In every case, however, the nerves exercise a prominent part. A departure from the natural laws of a healthy state of the secretions is here the cause of diarrhœa. Nature, therefore, steps in to regulate this; and as her efforts are directed to the relief of the patient, they are consequently curative actions. Our art is, therefore, only necessary to assist her, when such actions become inordinate.

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* The author begs here to suggest the use of the blanket-bath, recommended in a subsequent chapter, for children in convulsions. It will be found extremely beneficial in cholera cases of whatever class or character, especially where there are chills and irregular circulation.

Thus, the stomach may have an inordinate action from being overloaded, when sickness will ensue; and it will thus be relieved—this being the *acid* or *congestive state*. Yet you will seldom find this happen without some increased action of the large intestines following it. Here, then, is sympathy; and it is best for the system so circumstanced, when this occurs. If the stomach be in an inflammatory condition, so that nothing can be retained, there is then a deficiency of the gastric acid juice; and this is, therefore, the *alkaline state*. The large intestines will then exhibit another sympathy, by not acting at all. See how these two affections are reversed!

In the next place, if the irritation be set up in the duodenum from excess of bile pouring into it, without the possibility of its being appropriated, or capable of being used, the consequence is that it is passed off rapidly through the canal, often not affecting the healthy functions of the large intestines, but passing over fœcal matter, or only mixing with, dislodging, and carrying a small portion away, with great heat in passing the outlet. The sympathetic action affects the small intestines most, which refuse to absorb the matter traversing them. It is seldom, however, that the duodenum is the seat of inflammatory action,—and for this reason; that acids being the natural curative remedies for inflammation, it is constantly under their influence from the free acids of the stomach, even whilst the bile is pouring out of the liver in force, but which it cannot retain. Thus the gastric acid which flows into it from the stomach is sufficient to keep up its integrity. But, supposing the liver to fail in secreting bile, and the first duties of digestion to be completed in the stomach, the system is still provided with the means of converting the chyme into chyle, by the use of the salivary secretion of the pancreas, or sweetbread.

Again, if the liver continues in inordinate action, as it often does, the bile may find its way into the stomach. If that organ is in a healthy condition, this is immediately rejected by it; and by the force of vomiting the duodenum becomes mechanically pressed, and the tendency ceases. The stomach is not fitted to retain bile; and it must be in a very foul state should bile remain there, which is always evidenced by a very furred tongue,—this fur being of a yellow tinge. Loss of appetite is the consequence, with mal-appropriation of everything taken. The best remedies to retrieve this are emetics, given after a meal of any diet, —no matter what, as long as it can be swallowed and got into the stomach,—on purpose to facilitate, first, the mixing with its contents, and then their rejection.

After the liver has thus shown excessive actions by over secretion, it takes a rest from fatigue as naturally as the tired man would when he rests his body and limbs. Well, let it rest! Supposing you do see clayey fœcal motions for a little while—what then? You had better let them continue so and wait till the liver has recovered its fatigue: it will soon act again. It is only waiting to husband its forces which have all been used up. Why spur a poor jaded tired organ? If you yourselves were most dreadfully fatigued, would you like to be made to walk another mile or two unnecessarily? If time be given you, it is well saved for this very rest and refreshment. So it is with your horse: why spur a poor jaded beast who, the more you do so, will do the less for his owner? So it is likewise with the liver:—yet this is excluded, and must have the spur, for man wills it; and a good spur it gets too, in the shape of calomel or blue-pill. Indeed, I have seen this too frequently, with the usual result, that the more it has been spurred, the less it will act; because it has nothing to act upon.

When the liver does act, however, under this treatment, it is only by its enlarging; and in this condition, it loses every day in power of function, whilst it gains in bulk. Mucous membranes and all other glands are acted on to a dangerous excess as well; and thus an irritation is kept up in them. Nothing causes this so much as the mercurials, especially in systems easily and quickly placed under their influence, however small the doses; but where they do not so, owing to the peculiar idiosyncrasies of the individual and they appear to resist them, they then add to bulk and create an excess of carbon or fat in the system.

Natural irritation of the small intestines is mostly the result of increased mechanical power or peristaltic action. They are not so subject to congestions, but are very susceptible of being irritated by the matter contained in the chyle, as drugs for instance, and more especially the neutral salts. Any of these which produce increased glandular irritation and action, or excess of secretion of mucous surfaces, affect them. Proper appropriation and absorption of nutritious matter in its passage through them is prevented; and this being over hastened, leaves them too empty. Then they become, as it were, gas retorts; and a sympathetic action extends to parts both above and below them.

Irritations of the large intestines arise from natural, artificial, and mechanical causes. The natural causes are spontaneous vomitings, as I have spoken of above. When they arise from anxiety or fear, they are purely sympathetic actions. Irritations arise from congestions, when excess of nitrogenised or acid elements are present, whether they be solids, liquids, or gases. They may arise from inflammatory actions, which always keep up an irritation along their whole surface; for, if only one part be inflamed, sympathetic actions ensue. The artificial causes arise from drugs and the pernicious habit of taking aperient medicines out of season. The mechanical causes may arise from the two former actions producing excess of muscular or peristaltic action, which will always hasten a disposition to purging beyond the necessary limit for health.

Where the mucous membranes of the alimentary canal below the stomach are affected inordinately without reference to the place whence it originated, and a diarrhœa is the result, if the stomach is not implicated at all, the annoyance will be continued more or less for several days, or a week, without actually going into cholera, and continue so, as long as no sickness or vomiting takes place. Notwithstanding this, however, the mucous membrane of the stomach will be in a morbid or unhealthy condition by sympathy. It may not, indeed, for the present take on any inordinate action; nevertheless, until this organ has been relieved by vomiting, either naturally, or artificially by an emetic, the sympathetic action will continue unreduced; and when on the contrary vomiting has once taken place, the irritations of the alimentary canal below will cease.

Simple cholera, attended with vomiting at the outset, is sooner brought under control than in the above state of the case without vomiting. Therefore diarrhœa under the above conditions, continuing in a teazing, annoying manner, can be stopped by an emetic after a full meal of any diet,—for the very reason that you have simply arrested a chain of inordinate sympathies. Nature then being satisfied, soon restores an equilibrium of all contiguous mucous membranes. The reduction to given rules of all these combined actions of the alimentary canal, whether elementary, sympathetic from nervous influences, or mechanical, tends largely to the understanding of natural laws as well as to the acting upon fixed and certain principles, and always by simplicity of treatment.

I next come to those cases, in which the disease rushes on so violently, and each stage succeeds the preceding one so very rapidly, that before remedies can act, life is extinct. The shock to the nervous system is here so great, that little time is given for any action at all. In these cases, the instructions already given should still, as far as possible, be rigorously followed out. This leads us to consider the philosophical causes of the collapse, which after all, terrible as it is, is nothing more than the revulsion or shock that the nervous system has received from the suddenness of the attack. My readers are not perhaps aware of the intricacy of the vast network of the nerves of the body, and may never have paused to ask themselves how the most trifling injury to any part of the system is so quickly communicated to that great nervous reservoir—the brain. It is not, however, that any one nerve runs direct from any portion of the body to the brain, but rather that no nerve goes any distance without coalescing with other nerves, and thus forming little bunches, or *ganglions*.

Now to this union or coalescence, anatomists have given the name of *plexus*, and from each of these bunches a fresh supply of power is gained, the result of which is, that the sensations arising from so many combined sources are conveyed in due force and in all their integrity from the remoter parts of the brain. Should these bunches then be deadened or fail in their duty, this failure will be found to take place in those parts where they are the largest, and which may be justly termed half-way houses or stations, whose specific duties, owing to their great size and power, are to perform increased actions. Nowhere in the body are these so large and important as behind the stomach. A number of these nerves run from the *upper* extremity of one side; another set form the *lower* extremity of the same side, forming together on that side behind the stomach what is called *the semilunar plexus*, or half-moon shaped bunch of nerves. The same occurs likewise on the opposite side. These two bunches again coalesce, in order to form a single large bunch, which on account of its size, has been justly termed *the solar plexus*,—being, in fact, nothing more nor less than a sort of abdominal brain.

Here then, and nowhere else, is the battle-field, in which cholera uses its strongest efforts to subdue and destroy vitality; for where else should we look for the shock, the collapse that so suddenly strikes down man in the prime of life, after perhaps only an hour's sickness, except to the shock sustained by the solar plexus, that forms the half-way station of that great network of nervous telegraph which pervades every, even the most minute part of the human frame. Here then, and here alone, must have been the great failure. In short, it no longer possesses the power it once had transmitted to it from the upper parts of conveying its messages to the lower, or on the other hand, from the lower extremities to the upper part—the brain. Thus shocked, then, in its very centre, cut off, as it were, from both extremities, where is the system to acquire that power which shall sustain life's fabric, or how shall it proceed to restore it? If internal remedies fail to do this, we must fly to the use of mechanical or artificial means, and supply the want by external agencies; and the best method for producing this specific and speedy action is *galvanism*. In short, there are many cases, in which this is the sole resource left—a sort of forlorn hope:—and I can bear witness to its efficacy.

A small portable battery no larger than a moderate-sized tea-caddy is sufficient. The continued action of a current of electricity will produce, first a warmth over the surfaces, then an altered appearance of the skin, which, from a pale or bluish aspect, will put on a blush of red. As the operation is proceeded with, a deep sighing of the patient will show its beneficial action; a slight exclamation of "Oh!" "Oh, dear!" "Oh, dear me!" will convince you that you are proceeding right, returning consciousness will confirm that opinion, and the request to have it removed should only suggest steady persistence in the work so well begun of saving human life.

Be equally persevering, too, in your attention to all other matters. Consult the tongue at the earliest opportunity; and, having been taught to observe its indications, apply your remedies accordingly, never doubting that your labours will be crowned with success, if the powers of restoration be not too far exhausted to admit of efficient aid from man; for in this, as in every other malady, the final result rests with a higher power,—against the decrees of which there is no appeal.

We cannot but regard cholera as a very characteristic disease, tending to abstract all the fluids of the body towards and into the alimentary canal, for the sake of ejectment. In this act we find two important outlets, or organs, for purging the system from its superfluous acrid or acid fluids immediately arrested in their functions; and these are the kidneys and the skin. Thus, all the secretions, which ought to be used again for other purposes, as soon as they have been eliminated from their respective organs, are immediately carried off; while the excretions, such as the perspiration and urine, which must be previously secreted, ere they are eliminated from their respective organs, are prevented from being so by the very fact, that their bases have been carried away, leaving these excreting organs nothing to act upon. These very facts, I maintain, add formidable proofs to my hypothesis of the law of health; for we thus see that in cholera the system cannot exist without its necessary preponderance of acids. In this disease, nevertheless, not only are the superfluous acids carried away, but also those necessary for sustaining life. Hence we see, that the electric telegraph of the system, when its nervous centres have once collapsed, can no longer work; because it has lost just such an amount of force as the galvanic battery would experience, if it were to lose its due supply of acid.

Every process of cure, therefore, resolves itself into the simple restoration of the lost power; and this can only be effected,—*first*, by the arrest of all the excesses of action that eject this power from the system, as above described,—and *secondly*, to direct Nature into the right channel for returning once more to a correct performance of her duties. The first good symptoms, therefore, in this second act, are the restoration of warmth to the surfaces of the body, showing a proper circulation of the blood and the *return of the kidneys* once more to their duties of urinary secretion,—showing also that the blood has carried bases for them to act upon; at all events it is perfectly ridiculous for the cleverest or most scientific man that ever lived, to attempt to take any credit for curing cholera himself; *for that he never does.*

The only sound view, the only scientific standard that the profession can take with reference to a disease of such mysterious nature assuming so many varied aspects, is simply to assist Nature. I need scarce observe, that only the truly scientific and thoroughly conscientious of my brethren can see this, and they see it too with the greatest regret; for when art is used and fails,—united as it may be with the best, purest, and most laudable intentions,—we as often play into the hands of our opponent, the Disease, and not into those of our partner, Nature. Yet, notwithstanding all this, the latter often wins the game, and no thanks to us; for it is against the double opposition of disease and art. Nature, in short, never despairs, never ceases her exertions, and it would be against all her own laws if she did.

At all hazards, I would especially and most seriously warn the country to look to the European elements of our Indian army. We have arrived at a great epoch in its history. Ere long a hundred thousand of Britain's children will be called upon to garrison India. If, therefore, the regiments composing this force are to be kept on a war complement—which they must be under present circumstances—the depôts must be correspondingly augmented in this country for the purpose. There will, therefore, be a great drain upon it, even in peace; for the war of disease, especially cholera, will slay more than the enemy, even in an European campaign,—just as it did three years ago in the Crimea, where ten brave fellows at least perished by disease for every one that fell in the battle-field. It is therefore most imperative, more even than ever, that the laws of treatment with respect to all diseases—especially fevers and cholera—should be more simply viewed, in order to be more efficiently and promptly treated. Alas! how dull do warnings fall on listless ears. It is insufficient to go on heaping facts upon facts, matter upon matter, as has hitherto been done, without ever drawing therefrom any definite conclusions. The great question in all cases is very simple, and may be written on the finger nail: What is the cure? Make that cure simple, based on simple laws; and the riddle is solved at once. If old laws, old notions, and routine practices have failed, try new methods, based on new principles. At all events the reader may rest assured of this, that nothing can be so vague and uncertain as the methods now practised by the profession as a body for the treatment of cholera.

I shall now speak of calomel and the mercurial preparations in this disease. Avoid them, I say, as a curse; avoid them as false aids: shun them as the most mischievous of agents, however extensively they may have been used at the height of a yet dominant doctrine, that has been instilled into the very souls of the wisest and most learned, as well as taken up by the boasting and ignorant of the profession, and by them extolled as an unfailing specific—lauded to the very echo as a sheet anchor and indispensable agent in the cure of this disease. Calomel is in its first action a powerful stimulant, in its second, a most depressing agent. Its first effects give hope, its second despair; but no one ascribes this despair to calomel as the true cause. Oh no; they lay it to any other than that; and herein it is that they have been deceived.

I myself, educated in a school second to none for its teachers, should formerly have courageously upheld an argument in its favour against all the world; and I may truly say that no man in this country has been bolder in its use, or watched its actions with more lynx-eyed vigilance, than myself in the scientific search after truth. I may be pardoned, therefore, for doubting its sovereign virtues and abjuring its use; for new trains of thought have convinced me, that the profession will one day learn how to do without it as I have done, except in certain cases and certain conditions of the system, where its use is the exception, not the rule.

Recollect, reader, I am speaking now only of that cholera or excess of diarrhœa and looseness, which we see in this country. I am not acquainted by personal experience with these diseases as they occur in tropical climates; but yet I am convinced that the same hypothesis will hold its ground there as well as here. The natives of the tropical regions of the East are not, like ourselves, highly fed with solids. Fruit, vegetables, rice, and occasionally very light solids, make up their fare; therefore it cannot but be supposed, that in those countries, and on such constitutions, Asiatic cholera would produce such sudden and even fatal effects. Europeans, on the other hand, with stronger constitutious, partake of a more solid diet, and have power, therefore, better to resist its ravages.

In any case I am quite certain that, should you emigrate to those sunny climes, the laws I have already laid down for your guidance, based on the appearance of the tongue, and recommending alkaline or acid treatment according to such appearances, will still be of service. I may, indeed, be told that in these climates calomel is indispensable, and must be immediately administered; but I do not and will not believe it. The average number of cases are not cured by this so much, as by the patients' inherently good constitutions and powers of withstanding disease. Supposing, for instance, that an European has had Asiatic cholera, and has not had the trifling doses of calomel given in England, but ten, twenty, thirty, or even more grains, repeated frequently, very few indeed of them, if any, will recover from the effects of the drug; for the mischief it causes will be greater even than the disease recurring again and again—in fact, never eradicated from the system during life. It is a drug-disease, in short, and a most complicated, stubborn, and difficult one to treat.

Be assured that cholera, like all other diseases, has its laws; that even, when it is epidemic, ALL do not suffer, but only they whose systems are empirically predisposed, or who—according to the language of my philosophy have departed from the law of health—are in a condition to receive the disease from all or any of those causes, which I have before mentioned—causes which excite the action of others already existing, but hitherto latent in their own bodies. In all cases, then, take the tongue as your guide, and act promptly in obedience to its biddings. For instance, in some cases brandy and other alcoholic liquors are very injurious, while in others they do great good; the tongue will here be your best monitor, when you should give them, when refrain.

I have already told you, that all congestive actions of the mucous membranes require support. When the tongue is furred, then you will give alkalis, such as chalk, soda, &c., together with some stimulus accompanied by a little crude opium; in the case of a red tongue, denoting inflammatory action, administer acids, anodynes, and opiates, *but no alcohol whatever;* and, lastly, in the congestive diarrhœa or looseness, support well with solids and all diets that make but little acid in the last act of digestion, such as roasted or broiled meats; while in the inflammatory states, all diets that will make acid in the system, such as boiled meats, broths, milk, and the like, are those best suited for the patient. You thus see, then, that by a simple code of rules, as plain as they are efficacious, and founded on simple philosophic laws, great dangers may be overcome and life saved; whereas, when the treatment is guided by no fixed laws, and depends rather on chance than any true philosophy of disease, the natural result is a state of hopeless and inextricable confusion, and the chances of recovery to the patient are always doubtful.

Finally, it requires only that you be able to read your own language in order to understand this chapter; for there is no need that you should be indoctrinated in half a dozen sciences to be able, by following out the directions I have given, to be of great service to yourselves and others in the absence of the practical physician.

DYSENTERY.—This disease is so nearly allied to cholera in some of its phases, comes so much under the same laws of sympathetic action of mucous membranes (as previously noticed), and is so connected with types of fever, that it forms no unimportant conclusion to this chapter. When we consider the laws of health and the self-dependence of the system generally, and isolate one great fact—that of the necessity of the nitrogenised gases and elements of the body, as distinct from all other agencies, the great laboratory for which is the colon or large intestine itself—we shall be prepared to infer that, if this part fails in its duties, the whole system is in danger of failing in like manner.

Dysentery is one of the few diseases incidental to the large intestines, and may be called *congestive* or *chronic* on the one hand, or *engorged* or *inflammatory* on the other. In the former, the mucous membranous lining throughout its whole extent is in a morbid condition, secreting an excess of mucus, precisely as we find other mucous membranes doing in colds and catarrhs; the result being, that irritations are set up and constant mucous stools ensue. The fœcal matter comes away mixed with these; or else the excess of mucus will be so great that its elements will become decomposed in the gut, and mix with the fœcal matter in such a way as to destroy its real or true character; so that, when discharged, it has the form of a jelly-like mass of an intensely pungent, faint, earthy, fetid description.

In the engorged or inflammatory state, the mucous membrane is ill-nourished and constantly exfoliates; and, when this is the case, it cannot detain fœcal matter, as its secretions are not uniform or healthy either in their character or duties. They do not mix with the fœcal matter, or envelop it, or detain it along the gut; so, therefore, it aggregates and collects into small bodies that come away in detached lumps, technically called *scybalæ*. Thus, as the fœces are dispersed along the tube in a vapid form, the system loses its gaseous exhalants;

and as these are the vital ones, composed of nitrogen, sulphur, hydrogen, &c., and their combinations, which constitute some of the prime supporters of life, we find life fast ebbing away for the sheer lack of them. Hence arises fever, the natural effect of inflammatory action and loss of nitrogen ; and the more the system loses its vitalising or nitrogenised elements, the more does fever take on the low and exhausting TYPHOID FORM.

These actions are not sudden changes from health to disease, but obey consecutive laws. It is as true a fact as ever was penned, that in these diseases progress goes by gradation; and we thus see a departure from the laws of health in this peculiar condition, if circumstances cause the dysentery to reach its climax. It is not philosophical to say, that the person who is suddenly attacked with dysentery was well yesterday or a few hours ago. It is an impossibility; and I deny it on the simple principle, that disease is as much under law, order, system, and gradation, as everything else in Nature.

The laws, which I have shown to exist in mucous membranous sympathies, exist along the alimentary canal, when either chronic or inflammatory dysentery is present. One of these is shown in the curative action, that vomiting exercises thereon; and this is borne out in a singular manner by empiricism in the treatment of this disease, unaided by philosophy or induction. Authors agree as to the use of emetics for the arrest or checking of a disease of this character in the large intestines, which are at the very opposite end of the alimentary canal, and united in one opinion also, that when vomiting takes place naturally, the dysentery is brought more under medical control. Now this is a somewhat unexpected support to my argument. Nevertheless, there is great uncertainty in this treatment; because the disease is not sufficiently distinguished into its chronic and inflammatory stages.

In the former or congestive stage, the stools may be of a mucous, slimy character, and so may continue, if spontaneous vomiting does not take place ; and this is a condition which not only warrants the administration of an emetic, which must be given after a full meal, but one, also, in which the emetic actually benefits the patient by cutting off sympathetic action, which, in many instances, only aggravates the evil. In the inflammatory, or engorged dysentery, on the other hand, as contradistinguished from the congestive, the stools are slimy, jelly-like, and largely mixed with blood. Congeries of engorged vessels, chiefly small arteries, whose coats have been enfeebled, become ruptured, and their blood mixes with the fœcal matter. This may take place throughout the large gut, and it is incredible how much will come away. Nay, though the patient may be able to take a large quantity of food, both animal and vegetable, yet days and even weeks will elapse and no true fœcal motion appear. It is easy to comprehend the alliance of this disease with true scurvy, arising from either the insufficient or protracted use of salted provisions, or with the land-scurvy, which we recognise by purple patches under the skin *(purpura hæmorrhagica)* on different parts of the body, but principally on the legs or lower extremities.

Thus, then, the whole character of the disease can be clearly traced to a want of nitrogenised or vital elements in the system; and furthermore, the latter have arisen from want of integrity in the large intestines, which are, *per se*, the true seat of this disorder. To understand this clearly, however, we should show the empirical treatment; and though this is a complete enigma, we may be able to gather something therefrom. The following treatment of dysentery (embracing the most opposite elements in the pharmacopœia) has at some time or other been adopted, as consistent with the rules of art. The medicaments here employed embrace *emetics*, as antimony or ipecacuanha; *cathartics*, as rhubarb and calomel; *refrigerent cathartics*, as Epsom salts, phosphate of soda, and castor oil; *narcotics*, as opium (which may be united with any of the above, or with nitrate of potass); *tonics* and *astringents*, such as quassia, Peruvian bark, calumba, cascarilla, kino, arnica, logwood, and lime-water—the *acids*, with or without opium; *clysters* of an emollient character mixed with laudanum, &c., and clysters of mutton broth, arrowroot, &c.; *mucilaginous demulcents*, as gum-arabic, barley, arrowroot, linseed, and other teas.

Now, when we find all the symptoms of congestive and inflammatory actions and fevers combined, such as nausea, vomiting, flatulence, costiveness, griping, loss of appetite, thirst, shiverings, mucous stools with or without blood, slimy jelly-like stools with or without blood, and pure blood alone, and these accompanied by extreme emaciation and debility,—the simple-minded man would be glad to know, when all these symptoms are to be treated with their proper remedies, when the alkalis are most proper, when the acids are most beneficial, when the tonics are to be administered, and at what times the purgatives and emetics ;—and, as the opiates are necessary, when they can best be introduced. Calomel, say most people, can, as a matter of course, be given at any time; there is no law against that, whether in the extremest fevers or the lowest state of depression, or all or any of the intermediate stages:—it is one of the everlasting *dramatis personæ*, and walks at the head of the *corps médical.* My distinct conviction and announcement is, that in all this uncertainty there are no means of discovering the true condition of the general system at all equal to the indications to be derived from the appearances of the tongue.

If we first take the simple congestive action of the large intestines, the tongue will show, by its pale, white or furred flabby appearance, that there is a want of power in the system; and the deranged state of the mucous surfaces further implies a low, unhealthy condition of body. These, then, must be supported on the principle of never starving a mucous membrane in any of its low conditions, whether of cold or simple catarrh in the upper parts, or, as in the first stage of this disease, in the lower ones; for this, more than any other cause, will most assuredly hasten its progress towards the next stage. Should mucous stools exhibit themselves, correct the passages by a little alkali, ammonia, fresh-infusions, &c. ;—and if the tongue be furred, but moist and flabby, relieve the mucous membrane of the stomach by a mild emetic, after a full meal, if spontaneous vomiting does not supervene. The tongue will here point out the treatment to be adopted, in a general way, for the purpose of checking disease, and setting Nature in a right track, according to the appearances that have been already explained.

The second stage of dysentery requires to be treated as scurvy, or any general loss of power resulting from lack of the vitalising elements of organic life, or as fevers, caused by inflammatory actions of the large intestines, or those complaints where inordinate action in the secretions of the body has purged them away; and thirst is a marked symptom in the complaint. The tongue, in these cases, will become contracted, instead of being large, pale, and flabby; yet, in dysentery, it will so suddenly show a loss of power in the system, that it will become drier than usual, and exhibit none of its papillæ; or, if the large gut towards its lower parts is much inflamed, the red tip will be very apparent. This redness will extend round to the parts assigned to the kidneys; for no inordinate actions of mucous membranes can take place, like those in dysentery, without the kidneys becoming involved, and the acid elements, which should have been eliminated from them, being purged through the bowels. This redness will extend along the edges of the tongue, showing how much the brain is also implicated. Should there be headache, it will be across the forehead—that portion of the head assigned to the large intestines; but if no headache occurs here, there will still be a great uneasiness of mind, attended with anxiety and depression. This part is the reflecting portion of the brain; and you will find that those who suffer from inflammatory condition of the large intestine, producing dysentery, will lose their energy.

Men, who under any other condition or state of disease but cholera or dysentery, or any affection of the large intestine, will exhibit a pluck or courage truly wonderful, will yet sink and give way in these diseases. The powers of the mind being thus affected, the brain itself sympathises also, and the senses of reason and instinct follow. The sympathy along the mucous membrane of the alimentary canal affects the stomach, as we have already shown, and from this the back part of the head, accompanied by many other effects; and you will not require to be told, that when dysentery sets in with vigour, and is not immediately or quickly checked, it soon proves fatal. Cause and effect can here be traced in the clearest manner throughout the whole progress. On the advent of the engorged or inflammatory dysentery, the free use of the opiates and acids steadily persisted in is the true method to be adopted. You are called upon to arrest the inordinate actions of organs and their secretions by opiates, and to furnish fresh supplies of the acids, which are every hour flying off from the system, and upsetting the balance of the law of health.

Now, in the constant and persevering use of the acids, it becomes a matter of the greatest consequence to determine which is the most beneficial. Let me advise, especially, the free use of the NITROUS ACID. Ten, or even fifteen, drops of the strong acid in a little syrup and water, or in mucilage combined with paregoric, every two, three, or four hours; and if pain be present, or the stools frequent, every two or three hours, one grain of the crude opium made up into a pill, so as to get its bitter extractive as well as its more gradual narcotic influence, might be administered with advantage. This treatment will sometimes act like a charm. Yet, remember what I have already said: it is not the quantity of drugs that will cure so much as leading Nature, by their use, into a right channel, for her to do so herself. If you do not succeed in saving life, you are, nevertheless, not wrong in your treatment; and that is a great point in the philosophy of administrating remedies upon given principles, and not on those that are doubtful, for patients are, to my knowledge, not unfrequently lost on the latter. They cannot but have a far better chance of recovery when you cannot err in your treatment than when medicine is only given and taken in *hope*, without any philosophy. The addition of a bitter to these, for the purpose of allaying thirst, is a simple application of that form of it which the patient can bear, according to the peculiar climate he may be in.

The great end is to supply the nitrogenised or vitalising elements in the system, and the diet, therefore, should be entirely devoted to this end. The same peculiar actions will take place in this disease as in cholera,—namely, a determination from the surfaces to the centres. The lower extremities, more particularly, will be cold and clammy, so much so that warm baths have been recommended, but these are most pernicious. The blanket-bath, as I have recommended in the collapsed stages of cholera, and for infants, is most useful, as well as the application of the galvanic current down the spine to the soles of the feet, or the stomach.

In all inflammatory actions of the upper extremities and their organs, the sulphuric and acetic acids I have ever found to be the surest and the best. In ordinary cases of piles or hæmorrhoids they act very efficiently; but in inflammatory cholera and dysentery the nitric or nitrous and muriatic acids are incomparably the best;—which fact is also borne out in the external treatment of morbid, sluggish ulcers, and sores of all the lower extremities below the hip-bones.

When dysentery has been inordinate in its action, and the patient reduced to the very verge of death, let me advise the adoption of the plan recommended under similar conditions in cholera—namely, that if the bowels can once be stopped, they should be kept locked up for a week or ten days, or even more. Here one of the safest, surest, and best forms of diagnosis is the forehead-ache. If the patient is cheerful, and progresses satisfactorily, ask every day if he has a pain in the forehead, or forehead headache; if none, do not trouble yourself about his bowels;—for here Nature is laying up a store of nitrogenised and vital elements,—with which if you dare to interfere, death will reward your temerity or ignorance. Do not attend in these cases to your patient's first complaint of frontal headache; but apply the cold lotion:—for the forehead will most assuredly be hot enough, even if it does not ache. I have even seen, by a reflex action, the bowels induced to act, after being purposely kept confined by the application of cold refrigerating lotions to the forehead.

At all events, after such hazardous diseases as inflammatory cholera or dysentery, and their most inordinate actions, if you have pursued these plans, it would be better to administer a mild clyster than run the risk of giving any aperient by the mouth, as you cannot tell how the system or the alimentary passages will receive it. If you are compelled to employ the latter, the safest aperient that can be used, and that only with great caution, is a weak solution of Epsom-salts dissolved in boiling water, and suffered to stand till cold, combined with an acid and an anodyne.

I have thus endeavoured to point out the great laws that influence the nature and treatment of diarrhœa, cholera, and dysentery;—all allied to each other, and following in succession:—neither are they at all at variance with the fact, that similar disease is more or less influenced by the state of the individual himself, his mode of living, and the climate he inhabits. Fevers, diarrhœas, cholera, and dysentery, are mild or aggravated, according to any of these conditions. Empiricism may use the term *predisposition*, and schools may prescribe a certain practice;—yet their very differences on all points imply, how much has still to be learnt. So far, then, from ignoring already established truths, my desire is—rather to confirm them, and to extend, rather than circumscribe the means of inquiry; but to give withal a philosophy or well-based reason for whatever it has discovered to be good. Hence Glossology and the peculiar classification of headaches, as proposed by myself, will be found greatly to assist all departments of inquiry into human suffering,—whether mild, as in our own temperate climate, or fierce and aggravated, as under the tropics;—for the same laws obtain in both. The means pursued,—whether medical, dietetical, or otherwise,—must be based on philosophy alone. I, for myself, have no faith in received authority, as not being sufficiently explicit:—and for this reason I say to the uninitiated, "Take my simple views, as they will serve you without any deep learning." By adopting them, many a valuable life, I am satisfied, may be saved;—and life, be it remembered, is now more valuable than ever to the Anglo-Saxon race.

# CHAPTER VIII.

## ON POISONS: DIRECT AND INDIRECT.

### PART I.

Varieties of poisoning, and sources thereof, both external and internal—Division of poisons into acid, alkaline, and neutral, by Toxicologists; remarks thereon—Want of philosophy in the treatment of poison cases, and its results—Actions of the various poisons detailed, with the treatment recommended for each—I. THE MINERAL ACIDS. Sulphuric acid and its antidotes—Antimony and tartar-emetic—Arsenic—Verdigris and other salts of copper—Acetate and other salts of lead, with remarks on painters' colic—Mercury and its various preparations, especially *calomel*, with reasons for condemning its use as a medicinal agent—Oxalic acid, and its distinction from Epsom-salts—Prussic acid, and its allied preparations, with a notice of Langdale's pure oil of bitter almonds—Nitrate of silver, or lunar-caustic—Sulphate of zinc—Phosphorus and phosphoric acid—Nitre and its salts—Baryta—Lime—Tin and other metals, with their salts—Muriate of ammonia—Effects of swallowing solid substances, as fruit-stones, buttons, coins, &c.—Jugglers and their imitators—Treatment in such cases—II. ALKALINE POISONS. Potass, soda, ammonia, and their treatment—III. VEGETABLE POISONS, and alkaloids therefrom—Narcotic vegetable poisons, as aconite, belladonna, hemlock, henbane, nux-vomica, tobacco, &c., with their action, effects, and treatment—Strictures on smoking, showing the evil effects of excess, physical, moral, and social—Poisonous mushrooms, fungi, &c.—Poisonous fish, meats, &c., with their antidotes—Poisoning by the flour of diseased grain—Various conditions of human progress indicated by the consumption of the several cereals, wheat, rye, barley, maize, &c. &c.—Poisoning by fermented and distilled liquors—The sot and the drunkard described—Degenerating and fatal consequences of intemperance.

IT is not uncommon for persons of weak minds to take poisons for the purpose of self-destruction. Poisons may also be administered to them by others with an evil intention, and may also be given by accident. Again: persons may inadvertently eat poisonous herbs and other matters by mistake. Poisons may also be inserted into the system by inoculation—such as by bite of venomous animals or reptiles, or by puncturing the flesh with instruments charged with infecting matter. These two modes of poisoning may be called direct actions, and form a first class.

A second class consists of poisons that enter the system indirectly by inhalation of mephitic or malarious gases from many sources—as from drains, cesspools, marshes, low damp places, or from the exhalations of decaying vegetable or animal matter, or from holds of ships, from the bilge water, &c.—also from the contagious or infectious character of disease in any individual, the gaseous emanations from which sources may be inhaled by another individual, whose secretions and general habits of body may be in such a condition, that any additional morbid elements will produce a like disease.

A third cause of infection may arise in the individual himself, from a vitiated state of his own secretions; which, being chemically and vitally disturbed, will generate poisonous elements in the blood, and so produce diseases of a functional or organic character within the system, or else find an outlet to the surfaces, and so relieve the system in the form of eruptions or skin-diseases. All these phases of poisoning are worthy to be considered in due order, and to be simply rendered, that they may be as simply understood.

Now the Toxicologists, or those who have especially devoted themselves to the study of the properties and actions of poisons (and these include our most intelligent and enlightened physicians and chemists), have followed some very distinct rules, and, apparently without being aware of it, THE RULE OF THREE; so that, in collecting their ideas from many sources, we can trace a division of them into ACID, ALKALINE, and NEUTRAL substances, and have as clearly shown that they are to be treated by their opposites, when distinctly apparent, and by a neutral or mixed agency, whenever they are doubtful. For instance, for those which they know to have direct actions, they have laid down very clear rules:—such as, when an acid poison has been given or taken by an individual, they endeavour to neutralise its pernicious effects by an alkali of such a character, as will not cause so great combustion of their uniting elements, that the product would prove as destructive to life as either element would in excess:—such is their chemical care. On the other hand, when an alkaline poison has been given or taken, the same care is again used to stay its destructive character by an acid, having such properties only as to render it inert.

With poisons that have an apparently neutral character, yet containing peculiarly well-balanced acid or alkaline properties, their object still is to neutralise or dissolve them; so that their quantities or qualities being lessened, their activity at least may be destroyed;—one element being set free because it is harmless, whilst the other is reduced to another chemical compound, distinct but inert, and this, too, occurring with one or the other, as the case may be, according to the poison, so that at one time the alkali is rendered inert by being set free and the acid converted into another substance, or the acid set free and the alkali rendered inert. At another time, and which happens most frequently, the poison so taken into the system is sought to be removed by a judicious process of emetics;—thus following the natural tendency at all times by spontaneous vomiting to rid the body of the offending mass, which, when it happens, is always right to encourage.

When all these have been done, moreover, and there is any hope of saving life, great care and attention are to be observed as regards the effects produced by any of the poisons, under which the system might sink. These effects are shown by inflammations, or inflammatory actions, fevers, nervous depressions, exhausted bodily powers, irregular functions of organs, or such other chemical changes in the blood as are produced by active elementary substances, for whose exit from the system Nature provides in her own beautiful way by eruptive diseases on the skin.

So much, then, has been done by the chemical physician; so great are the labours of the chemist, so active the duties of both in the laboratory, that, although they insist and impress upon all persons their wonderful discoveries, that throughout all nature everything organic or inorganic may result from simple arrangements of four elements alone, or nearly so, and are so precise in forcing upon us these facts—continually insisting that nothing can exist that is not capable of being chemically explained—yet marvellous as it may appear, they shrink from the idea of referring health and disease, with all that we take, and especially of medicines, into the simple rule of three. Thus, while they give an alkali to reduce a direct poisonous acid known to be taken into the system, the alkali given in disease is only partially admitted to have this effect on any poisonous acid generated therein;—or if an acid is given, it is not yet permitted to say, that it is to correct an alkali, or that it is even to add to the system that of which it may be deficient;—but it is regarded rather as a tonic remedy.

Thus, again, in giving a neutral salt, the doctrine is not yet allowed, that it is the intention to permit or give an opportunity for any *elective* action, that the system or the chemical wants of the secretions may require; but it is for some corrective, given on some indefinite presumption of cure. Whatever may have been given in the form of druggists' compounds, the curious in the chemistry of the human body endeavour to find, in its secretions or excretions, how far such chemicals have been neutralised, decomposed, dissolved, or otherwise pass out of the system, unaffected in some extraordinary manner, or affected only partially or wholly.

In all these matters they will not allow themselves to be chemical physicians in the true sense of the word; nor will they overstep any defined propriety of practice, or any generally admitted dogma, but seem as careful as judges upon the bench, lest they should make a new precedent. Thus they are strictly particular, that their prescriptions should present no elementary decomposition of themselves prior to their being taken into the system:—yet they shut their eyes to the unruly uses which the great laboratory of the body may make of their scientific compounds as soon as they are swallowed. In short, they give medicines more to satisfy what is passing in their own minds, than from any certainty of what may be the effect of such drugs on the body or its diseases, and look only to results of which there is no certainty, and then change their medicines accordingly; thus with the purest intentions, prescribing only for their hopes, and satisfying a philosophy, which may be, and often is, only illusory and false.

All these circumstances so hedge in the practice of medicine, that a simple matter-of-fact person gets thoroughly bewildered; and, because he cannot be permitted to treat a simple fact by a simple thought or act, and declines to oppose or question that which is fixed, he floats upon the broad stream, satisfied with the buoyancy of the current,—presuming that all which the pilots have laid down on the general chart is correct, even if never understood, or fathomed, or capable of being explained. What is the uncertainty of life, the uncertainty of man, the uncertainty of events, the uncertainty of law, compared to the uncertainty of physic, as it has ever been practised even to the present hour? Yet, this is no fault of man;—it is simply the effect of another page of the Book of Nature waiting to be turned over. Notwithstanding this, however, all engaged in the healing art do their best, and presume upon some general correctness, facts, and conclusions; and that much has really been done we cannot deny.

It will prove a not uninteresting inquiry to note the actions of various poisons on the system, whether taken in a direct way in bulk into the alimentary canal, and so affecting the natural secretions by any of those processes which come under the general term of digestive or appropriative,—knowing, as we must, that Nature has but one course to pursue with everything that finds admittance into the stomach. Next comes the influence which poisons exert in the system by inoculation, and thus directly affecting the blood either locally or generally, from the simple sting of a gnat to the bite of a venomous reptile, or the poisoned arrow of a barbarian;—and then, again, the extraordinary effect which the gaseous poisons have on the body through inhalation, producing fevers and epidemic diseases which resolve themselves also into the many enigmatical causes of contagion and infection.

By tracing these in a very simple way, with the treatment of the effects produced in the body from all these various causes, we may be able to go on still further in our inquiry by comparing them with the natural diseases produced evidently from chemical changes in the secretions, and which often resemble the effects resulting from direct poisons. Indeed, singular as it may appear, the very remedies used in many of the most aggravated forms of natural disease, are those which are most remarkable in their effects produced by the direct and indirect poisons.

It becomes impossible, therefore, to shut our eyes against the causes and effects of the one, if they resemble those of the other; and if similarity can in any of these matters be traced, we must readily admit that a man may be poisoned as much by his own morbid chemical secretions, as he would be by taking a similar poison directly into his system. If the effects and the treatment are the same, we have a right to suppose that the causes are also. In the natural malignant diseases we often see many of the aggravated actions of specific poisons. Then why should we blink the matter, and have a different philosophy for the one than we have for the other, inasmuch as we use the same means for the remedial action of both?

Having premised these observations to show the scope and object of this chapter, I will now speak of the direct acid, alkaline, mineral, burning and corrosive poisons,—whether these substances be found natural, or have been produced by any chemical manipulation; also of the irritating poisonous herbs in their natural state—the narcotic herbs and plants and poisonous fungi—and decomposed animal and vegetable matter and fish;—all which substances are taken into the alimentary canal by the mouth.

## THE MINERAL ACIDS.

SULPHURIC ACID, OR OIL OF VITRIOL;—MURIATIC ACID, OR SPIRIT OF SALT;—NITRIC ACID, OR AQUAFORTIS.

EFFECTS:—Direct injury by burning and destroying the skin of the mouth, throat, and coats of the stomach. Acid burning taste, with acute pain in the throat; excruciating agony in the stomach and bowels; frequent vomitings of bloody fluid; copious stools more or less bloody; tenderness of the abdomen; difficult breathing from constriction of the windpipe; weak and irregular pulse; excessive thirst; drink increasing the pain, and seldom retained; accompanied by frequent, but vain efforts to make water; cold clammy sweats, altered countenance, suffocation, convulsions; death.

TREATMENT:—Calcined magnesia, as well as carbonate of magnesia, or chalk mixed with water. In cases of urgency, too, some of the plaster of the apartment may be beaten down and made into a paste with water; soap and water made tolerably thick; milk or oleaginous substances; melted butter; mucilaginous and bland fluids, all taken cold. Arrowroot made with milk; strong infusions or decoctions of any bitter roots or herbs—gentian or wormwood;—all these are the proper remedies.

*N.B.*—These are the chief mineral acids. The class next allied to them form the corrosive mineral salts with strong acid actions.

ANTIMONY AND ITS PREPARATIONS:—TARTAR EMETIC, BUTTER OF ANTIMONY.

EFFECTS:—This in moderate doses causes vomitings, which dispel all the poisonous effects; but if large doses are taken, and remain too long in the stomach, then the effects are similar to those caused by other acids: nausea and burning pains in the pit of the stomach; abundant and obstinate vomitings, which cease not but in death; copious purging and colic pains; constriction of the throat; cramps; symptoms of intoxication, and great prostration of strength; convulsive tremors; clamminess of the skin; impaired sensibility.

TREATMENT:—As the action of this poison is to cause vomiting, and the stomach is soon emptied, the use of a quantity of thick gruel or arrowroot made with milk is indicated as a resisting power to the stomach, and should be persisted in, as often as vomited. The vomiting, also, should be encouraged after taking this, by tickling the throat with a feather or the finger. Two or three grains of powdered opium made into a pill are most useful, as being less liable to be rejected than laudanum, and will gradually relieve pain; decoctions of any of the bitter astringent vegetables, such as the yellow bark, oak or willow bark, gall nuts—or if these are not at hand, a strong cup of black tea. As milk is coagulated by this poison, it of course forms a good antidote, especially if the curd be rejected. The tinctures of the barks are also good.

*N.B.* It is not often, that even large doses of tartar-emetic prove fatal; and it is not a fashionable poison. It is sometimes foolishly used to excess, by being put into wine or other liquors, or mixed in tea, to detect pilfering dishonest servants, or into mugs which are handy to the family beer-barrel, and so produce more awkward symptoms than were intended. A small quantity, however, is quite sufficient. We have lately heard of this, as a *preventive powder* for drunken husbands.

Arsenic:—The commonest, most vulgar, easiest to be obtained, and most used of all the poisons.

Effects:—A sharp, harsh taste, causing constriction and burning heat of the throat; hiccough; nausea; vomiting of brown matter; anxiety and faintings; heat and colicky pains of the stomach and bowels, with offensive stools; cramps and contractions of the legs; inflammations of the lips and mouth; palpitations; great and even intense thirst; difficult breathing; scanty and bloody urine; delirium; convulsions of an epileptic character; death.

Treatment:—If natural vomiting ensues early, it should be encouraged in every possible way, in order to get the poison out of the stomach. Large quantities of milk should be drunk; a table-spoonful of common magnesia dissolved in half a tumbler of water, or (what is better) in a strong infusion of gentian root; a table-spoonful of powdered charcoal in the same, or in an infusion of hops, if it can be readily obtained. Should sickness not come on spontaneously, an emetic composed of ten or fifteen grains of the sulphate of zinc should be given in milk. To ensure vomiting, in case the stomach be too empty, the patient should be induced to swallow as rapidly as possible a large quantity of cold thick gruel, before taking the emetic; because it mixes with the poison, and this prevents the stomach from collapsing upon itself;—in which latter case no benefit would arise from the remedy. Highly sweetened water, linseed tea, and emulsive drinks should also follow; lime water and chalk and water should be also given,—especially if the poison has been taken in solution.

As no specific antidote has been discovered, the above are the best remedies to be used, whilst there is any chance of saving life. If it can be even sustained and the poison be removed, it will nevertheless have caused great inflammation of the lining membranes of the stomach and intestines. These secondary affections are to be treated in the same way as those from natural causes. Ten drops of dilute sulphuric acid combined with syrup of red poppy in a table-spoonful of water should be given every two or three hours,—and alternately with this, a pill composed of one grain of the powdered opium with three of the extract of gentian. If high inflammatory and feverish actions ensue from a reaction through intense debility, it may be necessary to bleed the patient. Emollient and anodyne clysters may, also, be freely used.

COPPER:—SULPHATE OF, OR BLUE VITRIOL; SUB-ACETATE OF, OR VERDIGRIS; FOOD COOKED IN FOUL COPPER VESSELS, AND PICKLES MADE GREEN BY COPPER.

EFFECTS:—Acid and coppery taste; tongue dry and parched; constriction of the throat and coppery eructations; severe vomitings, or fruitless efforts to vomit or retch; dragging at the stomach; dreadful colic; frequent black bloody stools; or frequent desire to stool without effect; abdomen distended; pulse small, low, and quick; faintings; great thirst and anxiety; cold-sweats; scanty urine; headache; swimming of the head, cramps, convulsions; great feebleness in the lower extremities; palsy.

Artisans in copper are subject to similar complaints with painters, and get the "painters' colic." (See Lead.)

*N.B.*—With respect to food, whether flesh, fish, or vegetables, cooked in copper vessels, or in the process of making stews, preserves, &c., as long as the vessels are well cleaned and bright before using, no injury can happen;—but, if they be suffered to remain in the vessel to cool or stand any length of time, or being forgotten, have undergone the process of cooling, then they become most pernicious and poisonous. Even copper vessels which have been tinned cannot be depended on, as parts of the coating may be thinner than others.

It should be impressed upon the minds of all cooks and housewives, that all animal and vegetable matter whatsoever, especially the latter, where a little salt is used in their cooking, undergo certain acid decompositions in their liquors in the process of cooling, when in contact with any of the metallic substances, whether iron, tin, copper, &c. As soon, therefore, as the vessels have been removed from the fire with their contents—though the process of stewing may have been carried over some hours—they should be emptied whilst their contents are hot, and the vessels, whatever they may be, scalded and cleaned as quickly as possible; and if they have not been used for some time, they should be first scalded and well wiped out, as a wise and necessary precaution.

LEAD:—ACETATE, OR SUGAR OF LEAD; WHITE LEAD; GOULARD'S EXTRACT; LITHARGE, OR OXIDE OF LEAD.

EFFECTS:—A sugary metallic taste; constriction of the throat; pain in the region of the stomach; obstinate, painful, and often bloody vomitings; hiccough, spasm, convulsions, palsy, and paralysis; the aspect of the countenance dull, anxious, and gloomy; the complexion and colour of the skin cadaverous and ashy; frequent difficulties in making water.

TREATMENT:—Carbonate of soda, or the bi-carbonates of soda or potass, phosphate of soda, sulphate of soda (Glauber's salts), sulphate of magnesia, or common Epsom-salts.

*N.B.*—The fumes of lead being very poisonous, all those artisans who work where any preparation of lead is used—such as painters, plumbers, potters, porcelain-makers, lapidaries, colour-grinders, glass-blowers, glaziers, toymen or makers of toys, lead-miners, &c.—should be very careful and cleanly in their habits. They should always have their breakfast before going to work, and never have any meal in their workshops. They should always wash their hands and faces, and clean the dirt from their nails on leaving work, and before partaking of any meals,—and should wash their hands before going to bed. Their working dress should be thick cotton clothing, in preference to woollen;—and they should be most particular in attending to their bowels, never being without castor oil at their dwellings.

Painters who have been once subject to painters' colic, for ever after have a disposition to be so attacked. At first, when young in the trade, they have a great dislike to castor oil; but afterwards I have known them to become very fond of it. Although the lead affects the muscles, as is shown by the palsies in their hands and wrists, it seems primarily to affect the muscles of the various parts of their intestines. No part, however, seems to be affected so much as *the transverse arch of the large intestine*, or that part which runs just under the stomach, which contracts at intervals; and the pains of the complaint are oftener due to disease in this intestine, than in the stomach. Dilute sulphuric acid combined with salts and anodynes is most useful in these pains.

In the disorders or slow poisonings produced by both copper and lead, the tongue affords a great index to the remedies to be given for their relief. Thus the whole surface except the tip may be white and furred. The alkalis are then called for, with a vegetable anodyne, such as henbane. The nervous system may also be depressed; and this is indicated by the tongue being white without being furred. Sal-volatile and camphor may then be combined with the alkaline mixture and anodyne. When the tip of the tongue is red, with pain at the pit of the stomach, owing to inflammation of the large intestine, castor oil with an opiate, or salts with acid and anodynes, may be used.

The name of "Painters' Colic," or *Colica pictorum*, is more particularly derived from a colic which raged at Poitou, in La Vendée, France, in 1572, and lasted for sixty years. This evidently arose from the custom of making unsound wines palatable and marketable with LITHARGE, *or oxide of lead*. Vinegar-merchants in France buy wine for the purpose of making vinegar, and find their profit in adding litharge and reselling the adulterated preparation for wine. In our own country, old cookery books thus inform us: "*To hinder wine from turning.* Put a pound of melted lead in fair water into your cask, pretty warm, and stop it close." Leaden cisterns are now excluded from the cyder-house apparatus in counties where cyder is mostly made; though in former years litharge was used for correcting its acescency when spoiling. But whether lead is used or not, cyder at certain times, in some habits, will produce pains similar to painters' colic, as also diarrhœa.

In all places and trades where lead is used, or persons inhale the fumes of lead, especial attention should be paid to the diet of the artisans and workpeople; and it has been proved that those suffer least who eat a great deal of fat, or fatty, greasy substances of any description, that are wholesome, and who are, moreover, cleanly in their habits.

MERCURY AND ITS PREPARATIONS:—OXY-MURIATE OF MERCURY, OR CORROSIVE SUBLIMATE; NITRIC OXIDE OF MERCURY, OR RED PRECIPITATE; SULPHURET OF MERCURY; CINNABAR, OR VERMILION; CALOMEL.

EFFECTS:—Acrid metallic taste; thirst; fulness and burning at the throat; horrors and anxiety of mind; tearing pains of the stomach and bowels; nausea; vomiting of various-coloured fluids—sometimes bloody; diarrhœa and difficulty and pain in voiding urine, and often suppressed altogether; faintings; great prostration; difficult breathing; cramps; cold sweats; insensibility; quick, small, or hard pulse; flushed and swelled face; twitches of the muscles; paralysis; gangrenous ulcers; convulsions; death. These are its more violent actions.

Its milder properties, which are also bad enough, cause irritation of the stomach and rectum; inflammation of the lungs; depressed action and inflammation of the heart; oppression of the functions of the brain; salivation and inflammation of the salivary glands; swelled gums; loosened teeth; difficulty of swallowing; fœtid breath; and when it has excited the liver to its utmost, it causes its enlargement and thickens the blood by rendering its more fluid parts albuminous.

TREATMENT:—A thick solution of flour and water; white of eggs mixed with water;—sufficient of each to be given to produce vomiting and lessen the irritation of the poison. Milk may be given in large quantities. These remedies are very efficacious when corrosive sublimate has been taken. Gum water, linseed tea, sugar and water, and warm water by itself, at a temperature of 80 deg., are also useful.

*N.B.*—The great object is to neutralise the base of these compound drugs or poisons by neutral agents, and set the acid free by alkaline preparations;—the poisons themselves having caused inflammation of structure. But there are extraordinary anomalies in all these matters; for throughout the practice of medicine you will find that at one time the contraries are used for direct curative actions; while at another time the doctrine of the Homœopathists is successful—that "like cures like;" but all this is easily explained. Irritating acids combined with a base, cause inflammation.

Now I have spoken of this as being of two kinds;—first, in inflammations of mucous membranes, when the direct acids combined with opiates and anodynes cure;—secondly, in the deep-seated tissues, such as the serous membranes, the mercurials are given;—so that though the disease in the eyes, called iritis, may be produced by mercurial preparations, yet when actually present, these very preparations will have a specific effect on them. This is done by causing pretty general inflammation at other parts, such as in the mucous membranes; whence, by salivation and other pernicious practices, a disease more under control is excited, in order to cure another which is not so readily under control, because more difficult to be got at. Now, when we consider these facts, I do contend that the practice of medicine requires new thought and revision, and more inductive philosophy.

The immense doses of calomel and other mercurials given in tropical climates, apparently with benefit—at all events, according to the highest medical evidence, with no such ill effects as to poison, are borne; because the system has a power of resisting them by neutralising one portion of the compound—namely, the mercury itself—by the very albumen it has itself formed, or by the decomposed and disintegrated mucus it has made, whilst its acid portion acts upon the system, simply supplying an addition to it of that in which it was before deficient. I contend, then, that the best plan would be to give the acid by itself, and not run the risk, which is run now, and always will be, while calomel is administered, and thus sowing the seeds of other diseases which would not have existed, but for its excessive use.

Calomel is a cumulative drug, and may remain latent in the system for years. This has been observed by many. All admit this to a limited extent; and according to their own observations, so they apportion that time. In susceptible constitutions, I know in my own practice of many becoming salivated in severe catarrhs, who yet have not taken mercurials of any kind for twenty years. The excessive use of calomel even now in England and by the British school of medical practitioners is one great cause of consumption in this country;—for owing to our great and many changes of climate, our habits, our ceremonies, our often injudicious modes of clothing, even in the coldest and most inclement seasons—such as hot woollen dresses covering the whole of the body during the day, and the lightest fabrics and greatest exposure of the person at nights—these medicines are most dangerous and often lead to fatal results. In those systems unimpregnated with calomel and the mercurials, these extremes can be and are nobly withstood by the inherent good constitution of the Anglo-Saxon race; but where they are impregnated with the mercurials, the finest constitutions succumb to their evil influences.

We must notice, however, more particularly, the case of those artisans, whom civilisation has driven to the free exposure to the actions of the mercurials for its necessities and luxuries. Miners, gilders, barometer-makers, mirror and looking-glass silverers;—all these are peculiarly subject to the fumes of mercury, and get the mercurial palsies; the brown discoloured skin; the erratic and angular starting of the limbs, especially of the arms; and become unable to feed themselves or hold a cup to drink; nor can they walk steadily, or even articulate their words plainly. They have difficulty even in chewing their food; have tremors and quiverings in all their movements, and constant and violent starts; their gums recede from absorption, and all their teeth drop out. In short, they become pitiable objects, like living mummies,—then waste and die prematurely old.

Dr. Christison has justly observed, that "mercury acts as a poison on man in whatever way it is introduced into the body,—whether it be swallowed or inhaled in the form of vapour, or applied to a wound, or even simply rubbed or placed on the sound and healthy skin."

Oxalic Acid, or Acid of Sugar.

Effects:—Burning pain in the throat and stomach; vomiting bloody matter; inflammation of the tongue and mouth; excessive irritation and depression, and an almost pulseless state; torturing pains in the back and thighs, and constant restlessness.

Treatment:—Fill the stomach with thick cold gruel, and give an emetic quickly. That prescribed for arsenic will do; but a full dose of ipecacuanha—say fifty or sixty grains dissolved in water—will prove more beneficial. As soon as vomiting has taken place, large doses of chalk or magnesia should be administered. If not at hand, some of the plaster of the apartment should be resorted to, which should be stirred in water and drunk. These very simple substances neutralise the corrosive power of the poison and render it insoluble, thus preventing it from entering the blood. Death supervenes so quickly on the taking of oxalic acid, that there is seldom time to do anything more than relieve the sufferings of the patient; and death often does this, before the physician can arrive.

*N.B.*—Oxalic acid, to the uninitiated eye, resembles common Epsom-salts, for which it has been frequently mistaken. It is necessary to know a simple fact; which is, that when boiling water is poured upon oxalic acid, it crackles or makes a crackling noise, and gives out a pungent fume; while salts do not, and do not crackle when water is poured on them.

Prussic or Hydrocyanic Acid:—Essential Oils and Distilled Waters of the Bitter Almond; Cherry-Laurel Peach-blossom; Cluster-Cherry; Mountain Ash.

Effects:—Acrid pungent taste; peculiar odour like bitter almonds; an impression of acidity on the nostrils and back of the throat; giddiness, weakness, convulsions, lock-jaw; gradually increasing insensibility; salivation; cold legs and arms; glistening prominence of the eyes; death.

Treatment:—Ammonia, hartshorn, sal-volatile; stripping the patient and pumping cold water down the spine.

*N.B.*—The effects of this poison, even in small doses, are so rapid, that when it has been taken or given with intent to poison, the doses have generally been large enough to kill in the smallest space of time, and, therefore, beyond all remedy. Care is always necessary in its administration over a given time, even in what may be called curative doses, as the drug *may* insidiously collect in the system;—being what is called cumulative.

I may here mention that a commercial preparation of the "essential oil of bitter almonds" is largely used in confectionery, —to such an extent, indeed, as to amount to some thousands of pounds' weight annually. When due care is used, as the flavour is so exceedingly pungent, no harm may happen; but as cases of poisoning by these means are so frequent, we must not shut our eyes to the employment of this luxury by incautious persons, and that a portion of the community may be poisoned when they least expect it, when enjoying the hospitality of their friends and eating their puddings, tarts, jellies, and blanc-manges. Our chemists here again step in to our rescue; and the public are indebted to Mr. Langdale, the eminent essential oil manufacturer of Hatton-garden, for removing the poisonous properties (or prussic acid) of the essential oil of bitter almonds, and thus rendering this highly agreeable agent free from danger, or perfectly innocuous.

SILVER, NITRATE OF; LUNAR CAUSTIC.

EFFECTS:—Similar to those occasioned by other corrosive poisons.

TREATMENT:—A table-spoonful of common salt dissolved in a pint of water, and a wine-glassful to be taken every two minutes, to decompose the poison. Mucilaginous drinks may then be administered as well as purgatives.

ZINC:—SULPHATE OF, OR WHITE VITRIOL; OXIDE OF ZINC.

EFFECTS:—Rough taste; sensation of choking; nausea; vomiting; pain in the stomach; frequent stools; difficult breathing; quickened pulse; paleness of face; coldness of the extremities, but seldom death, owing to the emetic quality of the poison.

TREATMENT:—Draughts of warm water to increase the vomiting; potass in syrup; cream, butter, and chalk.

*N.B.*—Care should always be taken in using sulphate of zinc lotions to skin-eruptions, especially with children, as they may cause unpleasant and even dangerous actions.

PHOSPHORUS; PHOSPHORIC ACID.

EFFECTS:—Similar symptoms to those produced by concentrated acids.

TREATMENT:—Vomitings should be excited by large draughts of warm water.

*N.B.*—Oil and fatty substances should be avoided; as by dissolving the poison they would extend its operation.

NITRE; SALTPETRE; SAL-PRUNELLE; NITRATE OF POTASS.

EFFECTS:—Nausea; painful vomiting; purging; convulsions; fainting; feeble pulse; cold extremities; tearing pains of stomach and bowels, and difficult breathing; a kind of intoxication; and often death.

TREATMENT:—Similar to that of poisoning by arsenic; except that lime is not to be used.

*N.B.*—In substances like the above, being the unions of acids and alkalis, the danger always lies in the peculiar idiosyncrasy of the individual taking them; as the system is so elective under certain conditions, that no ill effects may happen at one time, and yet very serious ones at another. This should never be forgotten.

BARYTA, OR HEAVY SPAR; AND ITS SALTS.

EFFECTS:—Violent vomitings; convulsions; loss of power of the limbs; palsy; paralysis; distressing pains in the abdomen; hiccough; alteration of the countenance.

TREATMENT:—The early and plentiful administration of weak solutions of Epsom or Glauber's salts. If these cannot be readily procured, plain cold water in large quantities may be taken, and, if possible, slightly acidulated with sulphuric acid. These render the poison inert, by forming an insoluble sulphate.

*N.B.*—The muriate of barytes has been mistaken for Glauber's salts.

LIME; UNSLAKED LIME.

EFFECTS:—Burning pain of the mouth and stomach; vomiting; languor; obstinate constipation; insatiable thirst; cough and difficult breathing.

TREATMENT:—Vinegar and other vegetable acids; bitter infusions and anodynes.

TIN:—SALTS OF; MURIATE OF TIN, OR DYER'S LIQUID.

GOLD; BISMUTH; CHROME; GLASS OR ENAMEL.

The compounds of these produce effects analogous to the preparations of arsenic, copper, mercury, antimony, &c., though in a slight degree and not affecting life in so direct a manner. They are mentioned here, because they are used in the arts of colour-making, dyeing, &c., and have certain irritant effects, according to the peculiar constitution of the individual, thus often giving a mixed character to the disorders of our artisans.

My object being to trace cause from whatever source, in order to show that from the smallest beginnings the greatest evils may often result, I would here remark, that their simple arrest at first not only saves the time and labour of the artisan, which is his capital, but prevents his health from becoming impaired. So incautious, however, are all this class, that they seldom heed small complaints; and unless Nature were more thoughtful and bountiful to them than they are to themselves, more distress and suffering would occur than what we now see, which is quite needless. Many of the preparations used in their trades become the exciting causes of disease, and which are propagated by neglect, loose habits, and badly-ventilated habitations.

MURIATE OF AMMONIA; SAL-AMMONIAC.

EFFECTS:—Excessive vomitings, with convulsions and general stiffness of the muscles; great pain in the bowels; early alteration of the features; and death.

TREATMENT:—The vomiting to be encouraged with large draughts of warm sugared water, and if not occasioned by the poison, to be excited by a feather or the finger.

Thus you will see that when the direct acids are taken into the system in excess, they have active, burning, or poisonous properties, and must be corrected by neutralising agents which are generally their opposites in character. Their secondary effects act similarly to the corrosive poisons, and so require similar treatment. Lastly, when all the active actions from both causes are subdued, they leave irritations in the body, which necessitate their being subdued by anodynes or narcotics; for at this stage they are working on the nervous system. These few remarks, intended for the guidance of the general public, naturally lead me to the mention of substances which are swallowed by accident or design, and which produce irritating actions in the system. The fact is so common for children to swallow buttons, marbles, small pieces of metallic substances, and other things, and thereby frighten their parents, or those having the care of them, out of all propriety, that a few hints may be found useful.

Every medical man in his time has, no doubt, recorded some of these facts. In my own practice I have had many. Buttons, copper coins, small pieces of lead; in one instance, a small two-drachm glass bottle filled with powdered hartshorn, and corked; all of which were passed through the alimentary canal, without the slightest injury. A few recorded instances may inform "The Million," that Nature is very provident in all these accidents, and that they are not so dangerous as may be imagined.

The swallowing of the stones, when eating stone-fruit, is the simplest form of the above natural actions. During the seasons of cherry-gathering, persons so employed will eat an immense quantity while in the trees; and lest the stones should lead to detection from being spat out, they are swallowed. I have myself counted several hundreds of them in one motion,—discharged apparently without the least difficulty in one mass; and no doubt this takes place every year in all the cherry-orchards. Stones of other fruits are no doubt swallowed with the same results during the picking seasons, as well intentionally and matter of course, as by other persons accidentally, and then thought no more of. Pieces of steel, copper, iron, broken glass, coins, pins and needles, knives, hair-pins, buckles, &c., are similarly disposed of.

A sailor, for instance, who witnessed the tricks of a juggler, was bold enough to imitate him more practically, and swallowed several clasp-knives and other articles, to the astonishment of his messmates. In fact, for several years he was the "great gun —'tween decks." Emboldened by success, as well as by the apparent absence of all ill effects, and led on also by the wonder and applause of his many audiences, he at last swallowed so many of such large dimensions, that the facts would appear romantic, unless they were fully authenticated by the chronicles of Guy's Hospital, in the museum of which may still be seen many portions of them in their various stages of oxidation and decay.

Dr. Christison records the following interesting case in his valuable work on Poisons (2nd ed. p. 568):—"A young German nobleman tried to kill himself in a fit of insanity by swallowing different indigestible articles, though without success. He never suffered any particular inconvenience, except a single attack of vomiting daily; though in the course of seven months after he was detected, he passed the following articles by stool:—150 pieces of sharp, angular glass, some of them two inches long,—102 brass pins,—150 iron nails,—three large hair-pins,—seven large chair-nails,—a pair of shirt-sleeve buttons,—a collar-buckle,—half a shoe-buckle and three bridle-buckles,—half a dozen sixpenny-pieces,—three hooks and a lump of lead,—three large fragments of a currycomb, and fifteen bits of nameless iron articles, many of them two inches in length." Other cases are on record of men emboldened to foolish acts in their cups, who for very inadequate wagers have champed and swallowed their glasses with impunity;—nevertheless always with some degree of danger,—as it has been proved, that these foolish tricks may be performed once too often.

Now, it is necessary to mention the vulgar error often pursued in such cases, evidently without thought, by parents or those having the care of children, when any article has been swallowed; and this is the plan of flying at once to the use of castor oil, or other aperients, with the intention of thereby quickly expelling the said article from the system. Now, nothing is so injurious;—it is, in fact, as I have had occasion to mention elsewhere, one of those popular acts and prejudices so prevalent, that lead persons to do the very opposite of what they ought to have done. When the accident occurs, give the child a piece of bread-and-butter, and endeavour—if possible—to get the bowels into rather a costive state,—being cautious, moreover, so long as the article continues in the body, to give the patient very little to drink.

The reason is simply this,—that the article thus gets imbedded in the fœcal substance so produced, and comes away therewith. Care should be taken, therefore, to watch every stool, until the intruding article has been found. Now, if the bowels were purged, the fœcal matter would be rendered fluid, nor would anything be left to *bed the article*, which might then stick in one of the numerous convolutions of the intestines, and inflict the very injuries which it was the parents' wish to prevent,—but which may thus be caused by their sheer want of judgment.

When children are placed at table for their meals, all articles should be put out of their reach, their handling of which may lead to mischief;—for in truth they are "like Paul's mariners —every finger a fish-hook." Thus they may seize the tea-pot, and put the spout to their mouths and drink. I have myself seen several of these accidents, as well also as from tea-kettles. The injury, however, does not arise from the actual quantity of hot or boiling fluid swallowed;—for the mouth and throat are so quickly and acutely sensible to pain, that they are, in fact, less scalded than the face or hands, on which the obnoxious liquid is "in hot haste" spurted out.

Such cases, then, should be treated as simple burns; and, if possible, a tea-spoonful of the mixture of linseed oil and lime water in equal quantities should be put into the mouth of the little sufferer, who should be laid in a horizontal position;—or else a piece of rag should be well saturated in this mixture, and one end stuffed into its mouth, while the other is retained by the person doing so. In these cases, both infants and children are instinctively very amenable to remedies, when they find relief therefrom. When the first symptoms have abated, bland, oleaginous and mucilaginous drinks, given cold, will soon restore the healthy tone of the injured parts.

## ALKALINE POISONS.

Amongst the irritant poisons may be mentioned the alkalis;—which, in fact, are not very dissimilar in their action on the body from the acids, as they produce an equal amount of inflammation without corroding the tissues. The effects of the former, however, are more chemical, and dissolve the soft substances, when taken in bulk. As so large a per-centage of real disease is of an acid character, small corrective doses of the alkalis have elsewhere been shown to be productive of the most beneficial and curative results;—but I have here to speak of their excess, and consequently of their caustic character in the form of poisons.

Alkalis:—Potass; Soda; Ammonia, &c.

Effects:—In large, concentrated doses, they have an acrid, urinous, caustic taste; cause great heat in the throat and gullet, reducing the membranes thereof to a pulpy state; give rise to nausea; vomiting of bloody matter; acute pains in the stomach; copious stools; colic; convulsions; ulcerations of the stomach; difficulty of swallowing; hawking and coughing of tough, leathery flakes; contraction and stricture of the intestines; general derangement; death.

Treatment:—Vinegar and other vegetable acids given largely to neutralise the poison; lime and lemon-juice; lemonade well sweetened; sugar and sugared water, which will produce acetous fermentation. Dilute sulphuric acid combined with anodyne and syrup of poppies, however, is the best curative agent, if well persisted in, as the vegetable acids act at first simply as neutralising agents. Salad oil may also be given largely at first for this purpose,—the intention being to convert any fixed alkali remaining in the system into soap; and when this is quickly done, it renders the vomiting easy, and during this spontaneous formation, greatly soothes the stomach and gullet. The oil may be given until the vomiting ceases, or soapy stools are apparent.

*N.B.*—All the foregoing remarks show the distinct actions of irritant poisons, and also the distinct action of remedies impressed on our notice by the wisest of the profession;—besides which they clearly show, in a hygienic as well as commercial point of view, that chemistry forms the basis of most of the arts and sciences, and that the more it is cultivated, the higher and greater will be the advance of civilisation.

Another division of the poisons taken into the body, are those substances which have had no previous chemical manipulation from the hand of man;—I mean, the

## VEGETABLE POISONS,

which, for the sake of being more easily remembered, may be divided into four classes:—1. The Acrid;—2. The Narcotic Vegetable Poisons;—3. Poisonous Mushrooms and Fungi;—4. Decomposed alimentary substances. *First,*—the Acrid poisonous vegetables, which children and young people may gather and eat, not knowing or suspecting their character. To this class belong the following:—

The ANEMONE,—or wind-flower, a sort of ranunculus, nearly all of which family are poisonous.

ARUM,—of which there are several sorts;—the common arum or wake-robin,—the many-leaved arum or dragon's wort,—the cuckoo-pint, &c.

BITTER CASSADA,—from the roots of which the substance called *Tapioca* is made. The leaves are boiled like spinach, but, when eaten raw, are poisonous.

BRYONY,—or wild vine, wild hops, or tetter-berry, growing in woods and hedges.

CALTHA,—or marigold.

CLEMATIS,—of which there are several kinds;—the commonest growing wild in our hedges, and called traveller's joy. The periwinkle and passion-flower are specimens of clematis.

CELANDINA or CHELIDONIUM,—commonly called tetter-wort, which blooms about the time of swallows appearing;—whence one of its names.

CICUTA VIROSA,—water-hemlock or cowbane. This has been frequently eaten in mistake for smallage (*Apium graveolens*), a species of celery, which when wild is poisonous, but by cultivation loses that character, and is known as our garden-celery.

COLCHICUM,—or meadow-saffron.

COLOCYNTH,—bitter apple, bitter gourd, or bitter cucumber.

DAFFODIL.

DAPHNE-MEZEREUM,—spurge-laurel, spurge-olive, or widow-wail.

ELATERIUM,—the wild or squirting cucumber.

EUPHORBIA,—spurge; all its varieties producing resinous gums, and being acrid and poisonous.

HELLEBORE,—bear's foot, Christmas-rose.

Juniper,—or savin;—from one species of which frankincense is made.

Œnanthe,—hemlock or dropwort, an umbelliferous plant, frequently eaten by mistake for the water-parsnip.

Ranunculus,—of which there are several species,—as the butter-cup, meadow-crowfoot, pilewort, larkspur, columbine, and monkshood.

Sedum acre,—wall-pepper or stone-crop.

*N.B.*—All these are common vegetating herbs; and as I have elsewhere observed that all fresh vegetable matters or their infusions, are of an alkaline character, so some of them have more or less an acrid quality. It is worthy of remark, also, that when any of these species of plants or their juices are applied to the skin, they produce inflammation or pustular eruptions.

Effects:—Acrid, pungent taste, more or less bitter; sense of heat; dryness of the mouth and throat, with a tightness or astringent sensation; violent vomiting, which is continued after the stomach is emptied; purging, with pain in the stomach and belly; pulse strong, frequent, and regular; breathing often quick and difficult; appearance of intoxication; dilated pupil of the eye; insensibility resembling death, which itself may close the scene, unless the offending cause be quickly removed.

Treatment:—Encourage vomiting, when natural;—and when not, administer emetics,—either ipecacuanha, tartar-emetic, or sulphate of zinc. As long as any of the offending mass remains in the stomach, the vomiting should be encouraged, and the bowels afterwards cleared by a sharp purge of castor oil. Dilute sulphuric acid, with Epsom-salts, may also be given, and, if pain exists, an anodyne combined therewith. Thick gruel, too, may be taken, and strong infusions of tea or coffee. Should the system exhibit any low or nervous depression, æther, sal-volatile, camphor, and such-like stimulants may be given, combined with warmth and friction.

*Secondly*,—the narcotic poisonous vegetables comprise:—

Aconite,—monkshood or wolfsbane, of which there are several species, cultivated in our gardens:—its flowers are of a deep violet colour, and droop.

Atropa Belladonna,—deadly nightshade or mandrake,—likewise cultivated in our gardens:—the flowers are of a dusky purple colour, and droop.

Conium maculatum,—or hemlock, an umbelliferous plant, growing near dunghills, low ditches, and water-courses.

DATURA STRAMONIUM,—thorn-apple or James'-town weed; grows near dunghills, and is cultivated about London:—the leaves are used for smoking in asthma and nervous diseases.

DIGITALIS,—or foxglove, much cultivated in our gardens: the flowers of the wild plant are of a purple colour, bell-shaped and droop, but by culture become perfectly white.

HYOSCYAMUS NIGER,—or henbane; grows by road-sides in uncultivated places and rich soils, having straw-coloured flowers reticulated with purple veins. Horses, cows, and goats eat it with impunity; but it destroys man, dogs, birds, and fishes.

NICOTIANA TABACUM,—or the tobacco-plant.

PAPAVER ALBUM or SOMNIFERUM,—the white poppy, from which opium is made. The half-ripe capsules are cut at sunset and exude a resinous gum, which is collected in the morning.

PAPAVER RHÆAS,—the red poppy or corn-rose, a well-known field flower, but not a very active poison.

STRYCHNOS NUX VOMICA,—the vomic or poison-nut,—from which the deadly strychnine is made.

SOLANUM DULCAMARA,—woody nightshade or bitter-sweet,—grows in the hedges of moist localities, and has many small drooping violet-coloured flowers, that appear in June and July:—the berries, which are conspicuous in autumn, are of a bright scarlet colour, and very attractive.

*N.B.*—There are many other vegetable substances of a narcotic poisonous character; but I have only named those most common and best known. It may be noted here, too, that all plants whose flowers have five stamens, one pistil, one petal, and whose fruit is of the berry kind, are more or less poisonous. The umbelliferous plants which grow in water, and such as have purple and yellow corollas or crowns, may be suspected of being so likewise.

The acting principle of all these narcotic herbs or vegetable substances is an ALKALI;—and they therefore have different effects on different people. In the previous chapters I have noticed the very great per-centage of diseases to be ACID OR CONGESTIVE. The consequence is, we find more frequently, that the state of the system is in a fitting condition to combine with any of these alkaline or alkaloid substances, and convey their poisonous elements quickly through it;—whereas in cases of chronic inflammatory actions, or with persons who have naturally an *habitual red tongue* denoting an alkaline state, the system elects the narcotic elements to an advantage; and consequently the injury is not so great.

Effects:—When taken into the stomach, they occasion heaviness, stupor, numbness, lassitude, with a nausea and slight sickness followed by an insupportable vomiting. These symptoms increase in intensity to a species of intoxication, attended by stupidity and insensibility. In opposition to this, a lively or furious delirium—at first a dilated pupil of the eye; but if opium is taken the pupil will become contracted. Before the narcotic action takes place, there will ensue pains and convulsions in different parts of the body. The pulse will vary, but will generally be strong and full; the breathing quick; the tongue will become dry, and thirst ensues; great anxiety and dejection of countenance;—which if not speedily relieved, soon ends in death.

Very large doses of the narcotic poisons may be taken with a determination to commit suicide; and their very excess will counteract the object, because they are frequently rejected *en masse*, leaving behind only slight effects, from which the patient soon recovers. It seems, therefore, impossible to say what quantity will be sufficient to destroy life in all cases, because the peculiar condition of the person must always form one of the considerations in this wide question.

Treatment:—If any of the poisonous vegetables have been eaten and sickness comes on, it should be encouraged, to relieve the stomach from the offending mass. The patient should be kept well roused and sensible; the frequent dashing of cold water suddenly over the face, head, or neck, whilst other parts of the body are kept warm. Powerful ammonia should be applied to the nostrils—or even a feather dipped into it and put up the nose, and the eyes touched with it slightly. An emetic of ipecacuanha powder, combined with subcarbonate of ammonia and a little tincture of capsicum. The tartar-emetic or sulphate of zinc emetic might also be given; also common salt in excess with gruel; strong soap and water clysters, and after vomiting has ceased, an active purge of castor oil may be administered. When as much as possible of the poisonous substance has been expelled, a strong cup of coffee may be given. If the patient becomes somewhat roused by all these actions, and sinks again into stupor or insensibility, they must again be renewed; and if the heat of the body declines, warmth and frictions must be used, or the *blanket-bath* to the body and lower extremities, while the head is kept cool.

Before closing the subject of narcotic poisons, I must refer more particularly to the well-known *Nicotiana Tabacum*, or the tobacco-plant;—the immoderate use of which cannot but act as a powerful narcotic poison on the system. To the habit of snuff-taking or introducing the powdered tobacco into the nostrils, I have alluded elsewhere; so I shall now confine myself to SMOKING, on which my strictures shall be at least rational, neither condemnatory nor exculpatory, but simply to encourage inquiry. Tobacco is a narcotic:—its fumes impart a soothing influence, and when chewed it imparts the same feeling, with a general warmth. In my younger days, both smoking and chewing were confined to a few,—and those belonging to a particular class, that embraced the hard-working and toiling children of the soil, or persons much exposed to the weather. The labourer of those days would rather have foregone his meal than his pipe, and some their dinner rather than their *quid*, which, in fact, often served them as a *pro quo*, or meal.

If, as I have stated, the effect of all narcotics is, to arrest the actions of organs and functions, we can imagine the effect of a pipe or quid on a hungry man. It acts in detaining elementary substances, preventing them from passing off too rapidly and contra-indicating the necessity for the food, of which, he perhaps could not get sufficient for support. With the aid, therefore, of a pleasant narcotic, the hungry man will manage to keep what he had taken, longer on its road; and for this very purpose the same class of persons, just above the actual labourer, use it.

Alas! all this is changed now. The abuse of smoking came in with the cigars that were introduced by foreign merchants and travellers; and puffing these became *par excellence* the amusement and recreation of the gentleman. Thus cigars became in time somewhat common; and lastly very much so,—not confined to any class. Next the small meerschaum was introduced, as the new habit grew in so many different orders and conditions of life; and lastly the dudeen or short pipe of the Irish labourer followed, and now-a-days the most consummate *snobbism* in its most vulgar shapes practised by men and boys of all ages and in every station, is one of those customs which English society tolerates, just as it does the moustache. We are compelled then to ask,—is this custom either healthy, polite, or wise? I am convinced that it is the very reverse of all these.

The extent to which this mania is carried has become so essentially a feature in the habits of a certain class, that I can fearlessly say, it is not *healthy* when indulged in to any such excess. The necessities of those who gratify this morbid taste, do not, I am sure, require the detaining influence of a narcotic; which, were it only occasionally indulged in, might be beneficial; whereas the constant practice is so hurtful, both to mind and body, that we only very *rarely* see vigour and intellect in those who are habitual and great smokers.

Once more,—it is NOT POLITE; for the habit naturally leads to neglect of and indifference to the opposite and softer sex, whom it should ever be the study of the man of breeding and education to treat with honour and respect. I have observed with some degree of regret the evil influence which this peculiar *snobbism* has had in drawing the coarser sex (more so now than ever) towards each other, to the neglect of the opposite and humanising element of society. The cigar, the meerschaum, and the clay-pipe, with bitter beer, tweeds, loose jackets, and clothes of every conceivable shape and cut;—all these so indulged in, naturally alienates their slaves from the drawing-room and the society of ladies.

I have frequently remarked that the ladies never dressed better, more richly, or more elegantly than at present; while, on the other hand, I never knew the gentlemen (I hope the term is not exploded) dress worse, more negligently, or unbecomingly. Now, politeness to the fair sex is shown as much in the compliment paid to them by wearing a becoming costume, as it is by any personal attention. The insult to them is just as great in the neglect of this, as by behaving with rudeness or inattention. Thus has arisen, I say, a selfish gratification from love of the base and degrading vice of excess in smoking; thus has been introduced an *abandon* of manner and a carelessness to please.

There exists, in short, a want of propriety and general politeness in society since this low species of dudeen, or small clay-pipe mania, has been introduced, that I never saw before; nor can I in my own mind disconnect the cause and effect. Low habits have begot unseemly garments; unseemly garments, neglect of personal appearance; neglect of personal appearance has begot selfishness and an indisposition to please; and out of these has arisen studied lack of politeness and good breeding.

I am fully alive as to the source whence the rebuke and the correction should come;—if the ladies have but the moral courage to enforce it, and this, too, for their own sakes, as well as for the better manners and habits of their natural protectors.

In the next place, it is NOT WISE, because it has more or less a demoralising tendency:—it injures health, confuses and dulls the intellect, vitiates the mind, and while destroying the relish for noble, increases that for ignoble, propensities. It leads, also, to unnecessary expenditure of money, which is often required for better and for necessary purposes; and when I hear men boast of the annual amount of their cigar and tobacco bills, I receive all such information more "in sorrow than in anger," as coming from one who, probably with good parts, cannot think either rationally or with any depth. In short, he that is continually shouldering you in all places and in all societies with his filthy meerschaum, clay-pipe, and cigar, in season and out of season, may be set down as an idle character, essentially a lover of self in the worst phase of selfishness, and as having little regard for the comfort of any one else.

*Wise*, therefore, such a one cannot be; for his habits incline him more to the ephemeral productions of the day, half of which seem written in the morbid fumes of short clay-pipes; and so the minds which furnish this low class of literature are of the same character as those for whom they seem expressly written :—the parts of low novels and low depictions of the lowest of the human family, the constant habit and bad taste of embodying the language of these dregs of the population for the edification of the rising generation ; the burlesques at our theatres, which seem as if the very ink used was composed of tobacco-ashes and beer, and all that emanates therefrom partook of those matters, and became redolent of this compound.

Surely, when we see beautifully executed engravings in weekly illustrated papers enticing the refined to purchase, and then see in the very same papers the estimation of a filthy novel, where all the degrading vices of human nature are weekly exhibited—not as a warning, not as a beacon, but indulged in with a persistency of disgusting positions, without moral or end to be answered, I cannot help ascribing the latter in great measure to the disgusting and degrading influence of beer and tobacco. These are not written for the poorer classes, but for the middling and educated ones, whose low minds are not capable of appreciating the higher classes of literature, because it is too elevated for their standard, and therefore seeks alone that which, while it appears to suit their capacity, debases it still more.

This, I say, is the effect of the dudeen and the short pipe, for both have increased and grown up together ; the practice, I repeat, is not wise. The gentleman is often found in this low class—for there is always a degenerate member in every family :—but it is practised most by the *gent*—him who can never approach more than one-third towards the *gentleman*, either in name, title, or attributes ; this type is well known, and he always takes care, wherever he goes, to blaze it. It is not wise, for it destroys his appetite, weakens his digestive organs, even for what he is compelled to take, and lays the foundation for permanent ill-health, while, at the same time, he sacrifices his position in the world by his own follies and vices. This cannot be wise ; and if his company is not cultivated, but rather shunned, he may lay the fault to his habits, and the scent he bears about him of stale tobacco-smoke ; as if he always lived in the atmosphere of a canteen or tap-room. Such habits have only arisen of late years, from the unworthy imitation of the *foreign gent*, whose example has been followed; because *our gent* cannot distinguish the spurious metal of this imposition from the refined, of which he seldom sees or knows anything at all. All he sees are moustached plebeians, whom he takes for counts, but who are vulgar *attachés*, *artistes de cuisine*, or *valets*. The sooner, then, that this degenerate habit is eradicated, the better.

In what I have said, I do not wish to decry the indulgence of smoking in reason, for I am not so strait-laced;—my views are on the liberal side, and are wide in all points except when this low indulgence is inordinately craved. When reason regulates the gratification, too, let it be done with some modesty in private, and not to the offensive extent to which the public use of it has now attained.

*Thirdly*,—POISONOUS MUSHROOMS, FUNGI, &c; THE PEPPER-AGARIC; DEADLY AGARIC; CHAMPIGNON, &c.

EFFECTS:—Nausea; heat and pain in the stomach and bowels, followed by vomiting and purging; faintings; cold-sweats; anxious countenance; stupor; convulsions; small frequent pulse; dry tongue; great thirst; dilated pupil; delirium, and often death.

TREATMENT:—Promote vomiting by tartarised antimony, and empty the stomach quickly. Glauber's or Epsom-salts, in bitter infusions of gentian or strong tea, should be given, in order to purge the bowels as rapidly as possible. If thirst becomes diminished, and the system is depressed, æther, and brandy-and-water may be given; but if thirst continues with pain, anodyne and narcotics will prove useful, after the bowels have well acted.

*N.B.*—Poisonous mushrooms are readily distinguished from the edible, as the former grow in wet shady places, have a nauseous odour, are softer and more porous, have a dirty gaudy colour, with an appearance of varied hues; grow rapidly on soft bulbous stalks, and corrupt very quickly.

POISONOUS FISH:—The yellow-billed sprat; all shell-fish that is not fresh; conger-eel; all fish, in fact, that are in the first stage of decomposition; stale fish; mussels, &c.

EFFECTS:—After eating any of these improper substances, a weight and pain in the stomach ensues, accompanied with disgusting coppery eructations and swelling of the belly; giddiness; headache, and great heat of the head and eyes;—and thirst ensues, with considerable irritation in the skin, as of bites, stings, and prickly substances all combined; added to which, sudden eruptions may take place all over the body, or in patches.

TREATMENT:—Vomiting should be immediately produced by irritating the throat with the finger; large draughts of mustard and water; and when the stomach has been emptied, a thick basin of hot gruel should be taken, and after being allowed to remain a short time, then vomited again, this action being encouraged by copious draughts of hot water. A full dose of carbonate of soda with sal-volatile should be given, to correct the extreme acidity produced by these substances, and afterwards followed by active purges of scammony and jalap. If the tongue is white or furred, an anodyne, combined with small doses of soda or magnesia with sal-volatile, may be given; but if the fur is brown, and there is thirst as well, substitute infusion of gentian for water, or add tincture of gentian to the dose. Should the tongue be clean or red, attended with thirst, dilute sulphuric acid with an anodyne (paregoric) with gentian or calumba, is most useful, because there may exist some inflammatory actions.

*N.B.*—Similar treatment may be used, when any putrid meats, sour or mouldy bread or biscuits, or other ingesta have been taken, or any rank vegetables or vegetable matter.

All these substances, of whatever description, whether direct poisons, mineral acids or alkalis, or the minerals or vegetables, or their salts as prepared by man; or the acid vegetables or herbs alone, or those combined with distinct narcotic or poisonous properties; or poisons of any kinds; or any ingesta taken of an impure character, whether fish, flesh, or fowl, leave behind them, in their effects upon the blood and the secretions of the body, certain altered conditions, which either affect the organs in some functional manner, or else by metamorphosis, or some of the thousand transition-states, through which they pass, produce some latent morbid effects, and terminate more or less towards the skin in the shape of eruptions.

In concluding the first series of the poisons taken in bulk into and acting upon the system more or less perniciously, two other classes may be named, of so perfectly neutral and insidious a character, that they require a distinct notice.

The first consists of the flour of diseased grain, such as barley, rye, oats, maize or Indian corn, wheat, &c., and that of the seeds or pulse of the leguminious plants; namely, the hop, trefoil, linseed, darnel-grass, vetch, pea, bean, potato, &c. The general healthy and vigorous condition of mind and body, both of nations and individuals, as well also as their advance in civilisation, may be always considered in the ratio of the class of diet on which they subsist. The more nutritious and wholesome this may be, the higher will be the standard gained. In no other article of diet does power and vigour, mentally and bodily, so much depend as on the great staple of their food—bread. The scale which the human family occupy as nations may be weighed by this standard. If we take the lowest, we have the hunter, who neither ploughs, nor tills, sows nor reaps, harvests nor gathers up in garners, but who is more or less carnivorous and cannibal; living well during the open hunting season, but subject to famine and want, when the edible animals of the forest or prairies are difficult to be obtained. In a word, they are instinctive rather than reasoning beings, and know nought of commerce or literature. Those who may be styled the intermediate communities between the flesh-eaters and the wheat-consumers are those who use flour of the common cereals, as rye, oats, barley, maize, &c.; or live on rice, vegetables, and fruits; or on the flour of the pea, bean, sago-root, &c., as the Asiatics; or consume the potato in excess, as in Ireland and other parts of Europe.

There are always more or less poor communities, who cannot avail themselves of the best of their produce, but sell it to obtain other articles of civilisation which they require, and which they can only get by such means. They continue for generations, and even centuries, in all their manners and customs, and never rise in the scale of intelligence, nor admit of any innovation in their habits or pursuits. On the other hand, we find the richer communities possessing, as a matter of course, the highest advantages in obtaining and consuming the best of everything from every source. They raise for themselves, by a higher species of farming, the best cereals for their own consumption, and use the inferior for other and minor civilised purposes; whilst they are able also to purchase the best cereals from the poorer cultivators. According, then, to their power of draining damp soils, and clearing spaces for the better growth of their cereal crops, so they get their advantage, and rise in the social scale. All these matters are simply told; for where they cannot be done, adverse results follow. Noxious plants may by cultivation be made to lose their pernicious character, and to serve the uses of man. Animals may be trained from ferocity to useful docility; and both plants and animals have their properties, and flesh improved by culture, breed, and diet.

Thus man, where education and freedom are accorded to him, with the best diet, combined with the greatest liberty of mind and body, takes either, as an individual or a nation, the first place among his species. As bread is the great staple of the food of civilised beings, chemistry has pointed out the value of the various grains from which the flour is made, and the percentage of vitalising, nitrogenised, and most nourishing properties that each contain, and the influences they exert on the human body. Soils that are too humid produce disease in grain; for these can nowhere exist without a redundance of insect life; which, like all other masses of organic creation, must be sustained. Where, then, are they to obtain existence, except in another and a lower sphere to themselves? They, therefore, not only puncture the seed in its soft and growing state and extract its virtues, but in doing so injure it, and render it liable to disease. But disease being as incident to all vegetation as to all animal life, both are beneficially, as well as often injuriously, affected by each other.

Animal life must always be sustained by the properties of that which is vegetable. And the latter, however more beneficial, beautiful, or useful, must be considered inferior to the former. Whenever cereal crops lack the more beneficial action of cultivation (in the same ratio as everything else which is given man to improve) so they get disease, and from this source are of an inferior quality. Thus rye, barley, oats, maize, wheat, peas, beans, potatoes, &c., become affected in their turn. Rye gets *spurred* or diseased, as well as all kinds of inferior grain, and wheat gets the *brown* or *black rust*, or *smut;* peas and beans lose much of their wholesome constituents, and potatoes get the blight. Some natural action incident to the generation of insect life causes much of this disease.

It is not my province here to speak of the antidotes for all such actions, but simply to notice, that when flour is made from any species of grain for the purposes of being transformed into bread for man's use, and such flour has admixtures of the diseased portions of the plant, it thus acts insidiously, and nevertheless surely, on his system. It is, therefore, most difficult to say, what are the characteristics of the peculiar substances, in a chemical point of view, that so affect the fluids or solids of the body, when persons live for a certain time on such aliment. In this, therefore, there is something so distinctive, that I have separated it from all other more intelligible actions of the poisons.

The flour of diseased grain attracts moisture, has a peculiar aroma, and a slightly nauseous acrid taste. The dough is heavy; and when baked the bread cracks and crumbles, and is subject to an early putrefaction. It produces, according to the accounts of the best authorities, deficiencies in the general condition of the consumers:—giddiness; headache; flushed face; nausea; vomiting; colic; diarrhœa; weight and weariness in the limbs. It affects at distinct times the bodily as well as the nervous powers, depraving every secretion and producing in the former a dry gangrene; suppurations, cutaneous, or skin eruptions; the extreme points of the fingers or toes will shrivel up and drop off. The fluids of the body will get so depraved, that the whole surface of the skin will be tormented by a *sensation* of creeping of insects over it; so much so, that it has got the name of the "creeping sickness." The nervous system again becomes affected by losing its tonicity, and the intellect weakened, and reduced to general inertness—sometimes even idiocy. The flour of diseased Indian corn, or *spurred maize*, produces a loss of hair and teeth, and general reduction of animal integrity.

All diseases of the cereals, except wheat, have most pernicious effects on the animal economy; and it is remarkable in *wheat-eating* communities (even should the wheat be much affected by the rust or smut), that the process it goes through for making flour clears it more than the same process would do that of any other grain; and when it is taken, it has not any similar effect to the disease of any other cereal whatever; thus plainly showing that it is the fittest food for man. Those nations, too, which can afford to eat wheaten flour alone, must be, and are, the most robust in body, and most vigorous in mind; whilst those others who consume the inferior cereals, or all below wheat, even when such are not in any way diseased, are less robust in body, and less vigorous in mind.

The flour of wheat grown in very wet seasons, and consequently cut when unripe, does not affect the system by causing disease, though it has an evident deficiency of nourishing properties. Wheaten flour, when imported from abroad, will sometimes contain adulterations of the flour of darnel-grass, which is the only poisonous description of the grasses. The effects of this in its mildest forms are shown by vomitings, heaviness, languor, confusion of ideas, loss of sight, sleepiness, &c. These symptoms will be aggravated according to the quantity taken; and persons thus affected by it will have a piercing stare; violent agitation of the limbs; frontal headaches; palpitations; loss of speech, and drowsy, heavy stupor.

In this country, we are not so subject now as formerly to diseases from rye and other flours, nor are we liable to diseases brought on by the admixture of the flour of the seeds of the vetch, or any other seeds improper for the use of man. All countries, however, have their poorer classes of inhabitants; and all have to undergo the gradual transition-conditions before they reach the higher status of civilisation, and consequently they have to feed upon the less nourishing properties of both the animal and vegetable kingdoms. The inequality, therefore, of the civilisation of all countries is exhibited by the excessive development of the highest orders and the almost debasing poverty of its lowest denizens;—and in no other is this shown more than in the character of the bread they eat, and the amount of salt they can obtain along with it.

When the middle and lower classes of any nation are wheat consumers, they reach a higher status of both mental and bodily development and general physical endurance. When they are necessitated to live on rye, barley, oaten, pea, bean, potato, and other flour, they are in consequence inferior as a race in every respect. If those articles are ever so good, they have not the same vitalising character as the wheaten flour. Persistence in their use must have its due effect upon the constitution of the consumers; in consequence of which, morbid elements are generated in the blood of a more or less poisonous or noxious character.

The second, or fluid description of poisons, consists of all the various alcoholic beverages—namely, the distilled spirits, as brandy, rum, gin, whisky, &c., or of the many sorts of fermented wines whose foundation consists of the various species of the grape which may be pure or have alcohol more or less mixed with them, and lastly the many kinds of malt liquors, all of which, without exception, may be pure or impure, wholesome or deleterious, according as they are unadulterated or adulterated, or taken in either condition in a limited and beneficial quantity or to excess. The use of fermented liquors made either from malt or the grape are of a very early date, and seem requisite to the constitution of the human family. To some of the latter, alcohol has been added in various proportions,—in order to strengthen and keep them, whilst the pure distilled spirit has been subject to all kinds of rectification and flavouring for man's use.

For myself, if my opinion is worth anything, I agree in the doctrine that good liquors "gladden the heart of man, and make him of a cheerful countenance;" but it is when man makes them a vehicle to poison himself, that I am bound to warn him of his danger. I have elsewhere spoken of this, and have distinctly enunciated the chemical fact, that they are not nutritious—but cause nutrition by accelerating those actions, functions and secretions in the system, which make man the self-dependent being he is. The fact of his poisoning himself with them consists in the overwork he causes in all the thousand laboratories in his body, and so wearing out its machinery too quickly by the very excess of indulgence in their exciting actions, and filling his body with the elements of disease. Then follows as a matter of course disease itself, in all its various characters; thus life becomes shortened, and death closes it at a time when it ought to have been most valuable;—and had not the insidious poison been taken, another score of years might have been added thereto.

There is no misery and suffering so great, both in body and mind, as the slow and insidious self-poisoning by the excessive use of fermented beverages or alcoholic liquors. There is nothing so debasing to a man as intemperance in their use. Some may take habitually too much and never be inebriated, yet feel the effects in a sort of want of energy which indulgences of this kind produce, leading but common lives, and never rising above a certain level of society. These very habits are so low, that they care not, so that the indulgence is gratified; a certain industry possesses them, and they plod and poison themselves by turns. Others go a step further and become bacchanalians; nor are any pleasures so great or so sought after by these, for the purpose of drinking away the evenings and poisoning themselves, in what they call each other's good company. Lastly comes the sot and the drunkard, with the *spark* constantly in his throat, which he seeks for ever to quench but cannot,—to whom the potion is never unacceptable, the time of the day never too early or too late, if he is awake, or has just sufficient consciousness to take it.

It may not be unimportant to mention, that people poison themselves by fermented and alcoholic liquors by degrees, and that the vice is insidious; but it is pursued more by those who drink inferior and deleterious compounds, than those who take the purest and best of every sort, whether malt liquor, wine, or spirits. Still a certain moderation and firmness of mind are necessary in all cases, so as to take everything temperately and with benefit. It is true that those who drink the best can take the most without corresponding bad effects;

nor does it follow that those who take the largest quantity, and not suffer from its inebriating effects, are less culpable than those whom the same quantity would inebriate. It perhaps shows a greater power of imbibing from the constant habit of doing so—and the tale is as well told by this, as in those, who, not being in the habit of doing so, are more easily overcome. Those who can obtain the finest wines and can afford to keep them, till by their age all the alcoholic properties are exhausted, should never be too severe on those who cannot afford the price in the first instance, or be able to lay in such a stock as to accomplish the latter condition.

Chemistry, again, has been exercised to a marvellous extent in the fabrication of wines. I am told, that in Germany it matters not what the particular vintage is; for "the chemists" can make the worst wine appear of the best quality. Still their occupation is always neutralised by a good vintage; and that of the past year, 1857, has been unparalleled by any for the last forty years; so much so, that the wines in store have not the same value as the casks which contained them. Consequently, all the old wines have been sold at a nominal price, in order to employ the old casks for the reception of the new; and both the grapes and the vintage of 1857 will long be considered as of the most superior quality.

I was shown in November, 1857, some small chemical preparations *from Germany*, for making the *commonest spirit* resemble the best Cognac brandy and other liquors;—a few drops of which would so thoroughly impregnate a gallon of the commonest spirit, that few would distinguish it from the legitimate article; and here 100 to 150 per cent. would be the profit, unless the seller forgot his own interest so far as to vend it considerably under the generally-known price of the genuine article—a fact which would at once detect the cheat.

In this country a large trade is carried on, by selling to the proprietors of the gin-palaces certain compounds for the transforming of their poor and valueless spirits into "the best Cognac brandies," "pine-apple rums," and their other over-lauded compounds;—so that as far as taste is concerned, the public are pleased. Yet the laboratories of their own bodies alone silently detect and ultimately exhibit the base fraud. Who now, then, can possibly know what he drinks, who is compelled to purchase upon the principle of "hand to mouth" at such places, and is unable to deal with the respectable merchants? And yet these gin-palace kings call themselves respectable. Respectable, forsooth! Their numbers are, however, large in comparison with the few who would sooner poison themselves than a fellow-creature, by selling an adulterated article; though most, if asked, would go with you to the Lord Mayor, and make oath that their vile stuff was the purest that could be bought,—a proof, also, of what stuff their consciences are composed.

Be assured, there are no poisons so sure, or so stealthy and insidious in their characters, as malt liquors, wines, or spirits of all kinds, when taken beyond the strict rule of the simple sufficiency for all useful purposes. They undermine health, destroy the essences of the mind for all laudable pursuits, and jeopardise both body and soul. "Another glass," "another bottle," "another pint," therefore, are always to be avoided; for that "other" is always too much. Be merry and wise; enough will do you good: beyond this point let no man tempt you.

The effects of intemperance in the use of any kind of liquors are patent to all. They lead to the neglect of the person and the comforts of home; to families uncared for, and even starving; nausea and indisposition to take food, and rejecting it when taken, and ultimately to total loss of appetite; inability for all industrious pursuits; general immorality and carelessness of censure; inordinate action on the kidneys; early loss of manly vigour; unsteady gait and gradual enervation of the body; a sleepy, often bloodshot eye, suffused and dull; maudlin and pretendedly clever, speechifying, drunken arguments, which to the person himself are evidently clever, but to the listener eminently disgusting and foolish; foul stinking breath, with a filthy taint affecting the skin and person generally; blotchy eruptions on the face, vulgarly called "grog blossoms," than which no appearance is more debasing or more distinctly characteristic of the habitual muddler or sot; the vital powers universally depreciated, because the whole system is poisoned; thus producing premature old age; all of which end in delirium tremens, or true drunkard's delirium or palsied fever, when the mind becomes affected by the most diabolical impressions, beset with horrors and the torments of demons and a thousand fiends, imps, reptiles, and crawling vermin; constantly conjuring up tortures, both to itself and his emaciated body. At last, unhonoured, unrespected, and even shunned and despised both by strangers and friends, the miserable self-poisoner commits a gradual and certain *suicide.*

How to treat remedially cases of this lamentable nature is surely a question of vast social interest, as thereby tending to restore and even reclaim these deluded mortals. It has been my lot to see many cases of delirium tremens, or drunkard's delirium; and I have reason to believe that a large extent of chronic inflammatory action of the mucous membranes takes place,—with a corresponding inflammation of the coverings of the brain. These symptoms are indicated by the appearances of the tongue;—the tip and edges of which will be red, closely resembling the same characteristics in arterial fevers;—the centres furred, brown, and moist, sometimes thicker towards the sides than in the immediate centre,—at other times more furred in the centre than at the parts outside;—thus showing that a greater congestive or acid action will occur at one time in the lungs than the stomach, at others more in the stomach than the lungs,—the large and small intestines being meanwhile more or less inflamed. Under these circumstances there will be antagonistic actions going on between the two distinct inflammations of the brain and large intestines. Thus, the free use of opiates, in the shape, for instance, of a one-grain opium-pill every four or six hours, keeps the system tranquil, while the acid and anodyne mixtures are the most appropriate. Yet, on the other hand, when these inflammations are reduced, the tongue becomes creamy, white, and very moist;—in which case a change may be made to the alkaline medicines combined with henbane.

# CHAPTER IX.

## ON POISONS: DIRECT AND INDIRECT.

## PART II.

Direct poisoning from the stings or bites of insects—Serpents and snakes—HYDROPHOBIA—Punctures from poisoned darts, &c.—Effects on the absorbents—Treatment—SMALL-POX and its antidotes—VACCINATION—Poisons generated in the blood and bodily secretions, producing the different varieties of fevers—Predisposition to fevers—Progress of fevers explained—Analogy between the effects of fevers or self-generated poisons and external poisons—Contagion and infection distinguished—Malarious diseases on predisposed persons—Symptoms and treatment—Applications of cold in fevers—Importance of a correct Glossology—SKIN-ERUPTIONS—Two distinct ends attained thereby—Action of the blood-poison in producing measles, small-pox, chicken-pox, &c.; with treatment—Scarlet fever—Eruptions on the head and scalp; their treatment—Pimply eruptions and rosy rashes—Nettle-rash—Shingles—Effect of mental anxieties in causing eruptions—Different forms of so-called itch, with treatment—Blebs and vesicular eruptions—Coppery eruptions from intemperance—Tettery eruptions round the lips—Scurvy and its causes—General remarks on the treatment of skin-diseases—Simplicity in prescribing recommended—Mercurials and aperients condemned—Gout and rheumatism—Scalp headache and periosteal rheumatism—Chalk-formations—Diseases of the bones—Value of the tongue as a diagnostic in skin-diseases—General remarks.

### 1. POISONS BY DIRECT INSERTION INTO THE SYSTEM FROM STINGS AND BITES OF INSECTS, PUNCTURES, &c.; AND BY INOCULATION.

The least amount of irritation resulting from the bite of insects is that caused by the FLEA and the BUG, which seldom affect the system itself, but are confined to the local parts. Not so, however, are the stings of the GNAT, GADFLY, HORNET, BEE, WASP, TARANTULA, SCORPION, &c. It is proper to observe here, that the stings of these insects make punctured wounds resembling those produced by a pin, a needle, or a thorn from any of the prickly bushes, such as the rose-tree, &c.; and I have known precisely similar effects and symptoms to arise from these latter in irritable constitutions. It is questionable, therefore, how far the puncture of the insects' stings are really poisonous, knowing that thorns are not, but owe their virulence to the sudden destruction of the part they pierce, which is shut up directly the sting is withdrawn. The very law of matter is such, that no part can be injured without certain actions being immediately set on foot to restore it. So, therefore, Nature builds a temporary wall around the destroyed part, which becomes circumscribed; the centre portion thus forming a small fester.

In another chapter I have spoken of the desirableness of making all these punctured wounds into incised or cut wounds by pinching the part tightly from the underside, and cutting the skin with a sharp penknife or the point of a lancet, so as to give it an opening or vent,—thus preventing the destroyed structure from being shut up, and by sucking the parts, or applying a hot poultice, to cause a vacuum, and so extract the fluid from the wound. Nevertheless, as these processes are neglected, and as we know people will suffer a long time with toothache before they allow the offender to be taken out, so they endure stings, occasionally get abscesses, and have to suffer from a surgical operation in the end. What would have been but a small affair at first, dallying mortals put off to nurse a greater evil in the future. How characteristic this is in more important affairs! As these small injuries are put off, so it is the more important that we should now discuss them.

EFFECTS:—Stings of insects are so sudden and so effectively given, that they cause the sharpest pain and instant swelling of the parts; rouse the whole system to a sense of suffering; and often affect the mind much beyond the occasion or the danger. Nevertheless, nausea and even sickness ensue, with more or less of fever and intense irritation of the nerves, according to the part that the sting has penetrated.

TREATMENT:—Make an incised wound over the puncture, if you have courage to do so: and suck the part, or put on a hot poultice. Sometimes pressure over it with the barrel of a key will circumscribe the pain; and if the sting of the insect be left in the wound, this process will force it up, so that it can be readily removed. Hartshorn and oil may be effectively rubbed on the part; or a piece of rag moistened therewith, or dipped in salt and water, may be laid upon the part and kept constantly cold. The nausea will be relieved by a few drops of hartshorn or sal-volatile taken frequently in water; and if the tongue be at all furred, fifteen or twenty grains of the common carbonate of soda may be added thereto with advantage.

POISONOUS SERPENTS:—ADDER, VIPER, BLACK VIPER, COBRA DA CAPELLO, RATTLESNAKE, &c.

The adder is the only venomous reptile known in Great Britain. Nature, however, for some wise purpose, has endowed it, like other venomous reptiles, with a direct poison—contained in a provisional sac—communicating through a tube in one of its teeth, at the point of which is a small aperture.

EFFECTS:— A sharp pain in the bitten part, which quickly spreads over the whole limb and body; great swelling, at first hard and white, then becoming red, livid, and gangrenous; nausea; vomitings, faintings, and convulsions, with more or less intense anxiety of countenance, with paleness and distress —which produce jaundice from inward fear; pulse small, frequent, and irregular; cold sweats; sight and intellectual faculties failing, especially if the upper part or extremities have been bitten; but, if this happens to the lower, then hurried respiration and difficulty of breathing ensue, ending in inflammation of the lung (*pneumonia*). Whichever part is bitten, however, extensive suppuration and gangrene may be followed by death.

TREATMENT:—Apply a moderately tight bandage or ligature above the bite; lay the wound open with a knife or lancet, and apply a large poultice as hot and soft as can be borne, in order to abstract the blood rapidly; or else plunge the part, after it has been opened by the lancet, into hot water for the same purpose. Should the inflammation be considerable, loosen the ligature after it has bled copiously, and apply caustic freely to the wound; and, considering also that life may be in danger, a red-hot iron may be applied, which at such times can be borne with fortitude, on account of the opposing dread of death. Dress this afterwards with lint dipped in equal parts of olive oil and hartshorn. Bitter infusions of bark or very strong tea, and frequent doses of the carbonate of ammonia;—hartshorn or sal-volatile are then to be administered. Attend also to the condition of the body, and promote perspiration as quickly as possible. The blanket-bath can here be resorted to, as the most ready remedy. Keep the system well up by these means; and, if the nervous powers are irritated or depressed, combine the tincture of henbane and spirits of camphor with the ammonia; and, should the tongue be coated, which no doubt it will be, add carbonate of soda.

*N.B.*—Excision is seldom, if ever, necessary for the bite of the adder, however much it may be in that of the foreign poisonous reptiles. All these have tubular fangs, but only ONE row of teeth in each side in the upper jaw. The innocent snakes or reptiles have TWO rows. In these latter, their scales *increase* in size as they approach the head,—while in the poisonous species they *decrease*. The poison of these reptiles is not deadly when swallowed; therefore the wounds can be sucked without detriment, as we have had many noble examples of these acts being performed and life saved. The application of cupping glasses over the bite, when this can be done, has the same beneficial action, especially if the wound has been previously incised.

HYDROPHOBIA:—From the saliva of rabid animals through inoculation—such as from the *dog*, the *cat*, *fox*, &c.

EFFECTS:—At an interval varying from three weeks to four months, and often more, any person who has been bitten by a rabid animal may suffer from hydrophobia, than which there is no disease more dreadful to suffer from or even to witness. The disease will be ushered-in by a peculiar feeling of reclusiveness, anxiety, languor, general uneasiness, disturbed sleep, spasms, horrors, suspicion, increased and often difficult respirations, all of which will increase rapidly when they once set in;—distortions of the face, hideous grimaces, violent convulsions affecting the whole body and shaking of every limb. The eyes protrude and become red; the tongue swells out of the mouth, from whence flows a thick saliva. Pain in the stomach and bilious vomitings,—a perfect horror of fluids, especially of water, with an impossibility of drinking it, even when parched with thirst. Perfect sensibility, and a request not to be approached, with often imploring petitions to be destroyed. These symptoms last two, three, or four days, when death mercifully relieves the agonised sufferer. There cannot be a better proof than this of the fact of a germ of poison having been introduced into the blood, growing and increasing as a seed in the ground, until we witness its terrible effects in fully developed hydrophobia. Its acrid qualities produce an irritation in the nervous system much resembling lock-jaw, causing in both these diseases inflammation along the alimentary canal, especially the stomach. When once the symptoms of hydrophobia have fully set in, little can be done, the whole mass of blood being so entirely and insidiously poisoned.

TREATMENT :—Soon after the bite has been given, preventive means alone are the best to be resorted to. The part should be cut out as quickly as possible, and allowed to bleed freely, assisted by hot fomentations; or it should be immersed in a hot bath, in order to remove the atmospheric pressure. When the blood has ceased to flow, caustic should be applied, or even the red-hot iron. The sensation of the first cut through the skin and cellular membrane in any operation resembles the burning of a hot iron; therefore the pain occasioned by this to a fresh cut is no more to be dreaded than the cutting of the knife; and since chloroform has been introduced into surgery, the operation should be performed boldly and unsparingly.

According to the appearance of the tongue at the time, so the system should be generally treated. If it be furred or coated, at the same time that the patient feels a nausea, a basin of thick gruel should be given, immediately followed by an emetic of ipecacuanha, or tartar-emetic. When vomiting has ceased, alkaline medicines combined with ammonia should be prescribed. Should the tongue, however, be very clean and red, then the acid and anodyne medicines should be resorted to; but this appearance occurs to but a small per-centage of persons at any time. For several months after the bite of a rabid animal, the system should be watched and be kept in a proper balance of health. The decoction of fresh broom-tops (*Spartium Scoparium*) has been recommended. This contains alkaline bitter elements;—whence, no doubt, it purifies the blood, and prevents the spleen from becoming inactive in its duties.

It is said that hard knotty tumours show themselves under the tongue, if the rabid poison has become absorbed into the system. When this fact is observed, the above decoction should be drunk to the extent of a pint and a half daily for six weeks or two months, until these swellings are gradually reduced;—for when they no longer exist, all danger is at an end. Preventives, therefore, afford the only chance against the advance or cumulative influence of the poisonous germ or seed. When the true hydrophobia has once shown itself in all its horrors, no remedy has ever availed:—even the vaunted calomel considered so specific in many of the morbid poisons, fevers, and natural diseases, and carried to the highest extent possible, has had no effect upon this poison.

PUNCTURES FROM POISONED DARTS—or the inoculation of morbid poisons from opening dead bodies, or in certain conditions of decomposing animal structures before putrefaction has entirely annihilated their active properties—produce often very serious consequences. It is, therefore, safer to dissect a body several weeks after death, than to open one soon after death. During the game-season cooks and poulterers often get very severely poisoned hands from picking, skinning, and preparing half-putrid game; such as hares, partridges, pheasants, &c. Should they have a scratch or a cut upon their hands, this offers a ready inlet for the morbid poison, which produces intense pain and inflammation to the local parts, and is often carried by the class of vessels, called the *absorbents*, to the nearest bunch of glands, thus traversing up the arm, and producing a severe abscess in the armpit, and upsetting the general health.

Custom and popular usage have most unaccountably prescribed hot applications in these cases, whereas nothing can be so opposed to the proper treatment of them, as elsewhere explained. Whenever these occur, the whole arm and armpit should be wrapped in a towel and kept constantly cold, as well as the wound itself whenever it may appear upon the hand. By doing this, the inflammation is subdued, and the suppuration confined wholly to the poisoned part, which is sure to increase in size. As soon, therefore, as this is sufficiently developed, a free incision should be made in it, and a hot poultice applied,—still, however, keeping the whole arm enveloped in towels kept constantly cold and wet with water. As soon as the discharge from the wound flows freshly, the whole of the swelling and redness will disappear from the arm and armpit; a troublesome abscess being thus saved at a very tender and dangerous part; whereas, if warmth be applied, as popular prejudice too often sanctions, the poison will be attracted to the armpit, and a large abscess of longer duration and more painful, with greater detriment to the constitutional health, will be the result. The above cold applications I strongly and earnestly advise from long experience, as many weeks, and even months, of pain will ensue from the other, to the great derangement also of the general health.

SMALL-POX AND VACCINATION.—I have shown briefly, and I hope explicitly, what are the effects of morbid poisons introduced into the blood. But what are we to think of that peculiar habit in *our own bodies*, which, from some cause entirely irrespective of contagious or infectious influences, we ourselves generate, and mature into a poison, often as virulent as any direct one;—a poison which suddenly develops itself in the form of small-pox, bursting out, after a short feverish warning, into the most loathsome and dangerous form of skin-disease, and by which action alone the blood itself can be purified?

I have heard it said, that the world owes nothing to accident or accidental circumstances. Did it ever owe more to accident that in the discovery of an antidote to this same disease? Has medicine, in any other single or combined act, done so much by inductive philosophy, as accident has done towards relieving the human family from this vile distemper? Thousands of persons must have known the fact before JENNER. Yet neither the mind of Jenner, nor the thousands of men who lived and laboured in all the medical colleges of the world, would ever, by inductive reasoning, have invented another poison of an analogous character to stay and blunt the poisonous influences of small-pox. Yet it required but the unprejudiced, less-tutored, and simple mind of Jenner to observe a fact and mature it to the advantage of the world.

Here then is a man of a certain class of mind who steps out from the mass with honest conviction and integrity of purpose, and who stands boldly and alone, armed too with truth to withstand all opposition. Could those opponents of great truths, ranking in their day as the wisest and most enlightened of their time, revisit the earth and see their names inscribed on the black-roll of civilisation as the enemies of progress and advance, how would their perturbed spirits shrink in shame from the revealed light, and feel grateful that they were unremembered! Truly these are lessons even to the present, and what are deemed the greatest minds, and should keep them always young and open to impression. Yet, how ill does every age profit by such precepts!

Now Jenner must have reasoned thus:—was the pustular disease of the udder of the cow the animal small-pox? Was the inoculation of the milkmaids' hands by the exudation of these pustules, as they pursued their labours, really a preventive against small-pox? Was this virus an antidote to some specific poison in the blood, which, if suffered to germinate, would produce small-pox? If these persons became exempt from small-pox through the opposing power of another virus, then why should not the innoculation of this virus be tried? The reasoning was simple, simple as the observation. This is the sort of mind to receive impressions. An impression never meets with any difficulties in such minds as these. What makes one child, one youth, more intelligent than another? Why this very condition of mind, aided and cultivated by simple observation, to be matured by their own thoughts and excogitations.

Jenner discovered vaccination. What do we not owe him? Yet where was his monument? Is there not one in every capital of the civilised world? Does not every potentate point to that statue as the effigy of one who was the benefactor of himself as well as of all his subjects? Does he not honour the foreigner? Do we not personally honour our countryman? Are not his figure, his form, his features, known to all the world by these mementos? Do not all books of travels record the positions of these poor dumb statues? Alas! the answer must be written. The greatest benefactor of his race has them not!!*

The virus from the pustule of the udder of the cow is a poison; and that poison is introduced into the human system for the sole purpose of opposing and counteracting the more virulent one latent in the blood of every man, which it destroys and renders inert; so much so, indeed, that it has been proved that a person is less liable to an attack of small-pox, after vaccination, than when he has had small-pox naturally. Notwithstanding, however, that the legislature of every civilised country now compels vaccination, small-pox will and does appear in the community. That small-pox will occur after vaccination, is also a fact:—yet, as I have said, it is more protective than the disease itself; for that does not appear to rid the system of all its germ, a proof that many diseases, supposed to occur but once, do occur oftener, as I have often witnessed.

When small-pox occurs very frequently in the community, I have reason to think that some blame rests with the profession,—that they are not careful enough in following the rules which Jenner laid down; or that the virus was taken, when it had just commencod its change into a purulent matter. If the virus is taken from a pustule in a pure, limpid condition, clear as crystal, from the sixth to the eight-day, according to its maturity for the specific purpose of being used as a preventive, then it is pure VIRUS; but if it be taken, when the pustule has begun to exhibit the least opacity, or when it can be distinctly seen upon a glass even slightly milky, it is PUS; and though it may have power to prevent small-pox, it is yet uncertain, rendering persons vaccinated with this liable to a return of the disease, as they are then only half protected therefrom.

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* The above was in type prior to the erection of Jenner's monument in Trafalgar-square.

Sufficient care is not taken of this in the Government Vaccine Institution; and it often requires the keenest eye to detect the defective virus. I have seen, and no doubt other observant medical men have also noticed the fact, that one child will mature a pustule sooner than another, while others take a longer time. Thus a child of active circulation will exhibit a pustule ripe for the supply of the virus at the sixth day, which will be perfectly useless or even pernicious on the next; while others will not show a proper maturation of the pustule for the purposes of vaccinating others till the ninth day. The medium time has been stated as the average, and many follow it from a lazy unenquiring habit; but in all cases the pustule itself should be the guide and Jenner's rules be strictly followed.

If children are vaccinated too young, the metamorphoses of the secretions which they pass through will often oppose the action of the vaccine virus; and should they be in health, living in good air, properly and carefully nursed and nourished, the age from six to eight months is the best time for vaccination. It is, however, safer, under conditions the reverse of this, that they should be vaccinated earlier and revaccinated at a future time.

Taking small-pox as an illustration of a fact, that the human system generates its own poisons, and that whenever such departures from the law of health, which I have laid down, obtain in the system, we may reasonably assume that the blood in its chemico-vital changes conceals a poison which may break forth in disease, and that such disease may be of a contagious or infectious character. However numerous these distempers may be, we have never had a specific for them equal to the vaccine-poison, as opposed to that of small-pox; but we treat them according to the sum of our knowledge. That these poisons, however, exist in an incipient condition in the system, and form what are called empirically the predisposition to disease, there can be no doubt; for the extraordinary variety of the elements combined in the human system perfectly justifies the conclusion, that in certain disturbed, diseased, and otherwise decomposed, corrupted, or altered states, they may assume at times the artificial standard of any foreign, organic, or chemical poison;—and in such light we are fully justified in viewing them.

### POISONS GENERATED IN THE BLOOD, AND SECRETIONS OF THE BODY AND THEIR EFFECTS.

As it is certain that very virulent poisons may be generated in the secretions of our own bodies by certain chemical changes in the blood and other fluids of the body, even under the most favourable conditions, in the purest atmospheres, with every appliance of good and wholesome diet, we must conclude that an individual may have, and actually often has, spontaneous attacks of virulent diseases, without contagion or infection. If such be the case, what is there to prevent this self-generated poison from producing all the varieties of fever; such as *scarlet fever*, *typhus*, and *typhoid fevers*, and every other type of the inflammatory fevers which are always the increased actions from the first congestive germs of poisonous elements. In their milder characters we find simple inflammatory or incipient feverish actions, as *measles* and *quinsy;* or those of the type of St. Anthony's fire or *erysipelas;* or those fevers whose germ is not yet destroyed in the system, after some previous forms have taken place, but which leave and return at intervals, being known as the *intermittent* and *remittent types*, until at last time eradicates them, and the germ wears itself out—as in *ague*, &c. These phenomena are very imperfectly understood; yet their effects are well known to exist in isolated cases, continuing and remaining uncommunicable to others, and persistent only in the individual himself.

We are for ever seeking distant and foreign causes for these peculiarities, and seem to overlook their purely personal character and cause. Ever person's system, under certain morbid conditions is open to this chemical decomposition of its own secretions; because they contain elements, which in their various combinations are capable of producing an equally virulent poison with any they may imbibe, or inspire, or take from external sources. Under these circumstances, I myself can see no great mystery; nor do I agree (because it is not to be categorically explained,) that any mystery need be made of the fact. Every one can well understand that, in any given individual, whose system and secretions are bordering on a condition to generate a poisonous disease of himself, any addition to this state from external causes would accelerate it, and he would thereby become infected.

It is then the simple application of the spark to fuel already prepared for its reception;—and whether it be communicated from one person to another, or arise from some peculiar state of the atmosphere in any given locality, or from the presence of atmospheric malaria traversing certain spaces in given circles on the surface of the earth, either with the wind or against it, certain it is, that it finds in high healthy, as well as in low and unhealthy localities, subjects always fitted to receive the spark or exciting cause. Certain is it, also, that in these same localities others, differently situated, escape. No longer, then, need we wonder, why these latter are the non-infected, or why the others become influenced or positively infected; the reason being that the system of the one is pure, has a just balance of health, and is therefore not capable of contamination, whilst the other has so far lost this just balance as to be almost on the point of self-generating the disease.

These facts can be explained in no other way than by starting from a certain hypothesis, as regards the chemico-vital law of health. If we attempt to reason on any other basis, we can never be said to philosophise. A thousand suppositions only make up the sum of the opinions which are recorded; and, however they may be dressed up in the varied language of authors, they always leave behind a doubt, or want of a clear understanding of their views as well as an assemblage of inferences; so that it still continues, and always will continue, to be an open question to be mooted again and again by every succeeding generation of men. It is only necessary to say that fevers, with all their sequences, whether eruptive or non-eruptive, are only effects, and consequently the only possible ways that Nature has to rid herself of the cause.

By comparing these effects with those produced by the direct poisons taken into the system, as previously noticed, we shall find a very close analogy between them; and this will be as much apparent from their treatment as from anything else. You will have seen how Nature acts in most of these cases. First, vomiting takes place,—not simply to get rid of the offending mass, but also to relieve the congestive action set up in the system. This natural act, therefore, is not only encouraged by the intelligent physician; but when it does not occur, he invites it by emetics and vomits. Authors of all nations and times—and their name is legion—have all recommended the use of emetics and vomits in the first stages of certain fevers; not from any philosophy of their actions, nor any well-defined inductive reasoning,—not because any one of them may have said that it is to relieve a congestive state of the system or a surplus acid state of the secretions, but simply because it has been found beneficial, and will often check the first progress of a fever or lessen its virulence. Why, then, should we not reason thus, and say that it reduces the condition of such system, and brings it nearer to the healthy standard; and knowing this, that it should be persisted in as long as the tongue is foul or furred. No wonder, then, that emetics empirically given have the effect of arresting a fever. When they do this, it is evident they have been carried far enough; but when an emetic has been given and only mitigates the attack, it is a proof that the remedy has not been carried to a proper extent. Here, then, is seen a great fact. The subsequent remedies are here again most clearly pointed out; for as long as the tongue remains at all foul, or furred and moist, the alkalis must be boldy given; which, if they do not perfectly arrest the progress of disease, yet considerably check its power or intensity; because the germ or morbid poison has been most assuredly disturbed or rendered inoperative.

The term CONTAGION may signify either the actual touch or application, contact or inoculation, of a substance of a virulent character to an individual whose condition is fitted to receive it; and it produces disease by absorption of a poisonous element, that will excite deleterious effects on certain properties of the blood, which is capable at first of being reduced by preventive and precautionary means, whilst shiverings, nausea, depression, pains in the back and loins, headache, lassitude, and a general malaise, supply the specific actions.

INFECTION, on the other hand, arises more from the aërial poisons—those which are absorbed by inspiration, as from fevers of all kinds, whooping-cough, &c., or the effluvia from individuals; also from morbid gases, from many sources; and, strange as it may appear, many of these diseases are not communicable from one individual to another, but can only be taken from the self-same source as themselves. Thus, yellow-fever is derived from noxious gases, as an infection; but it has been proved beyond doubt that this malady is not contagious from individual to individual. It can therefore only be taken in those localities, where there are poisonous gases to generate it.

So insidiously do the aërial poisons—or those which are taken through the lungs and carried into the system—act, that we know but little about them, except from their effects. The same train of symptoms is set up as have been noticed in the contagious diseases, and shown in the symptoms of poisons from direct causes. We cannot, however, shut our eyes to the fact, that the system itself can and does generate morbific poisons quite irrespectively of any external influences. Yet, whether this be the case or not, all of them first give rise to congestive actions in obedience to a sure and certain law, and should be treated on the system laid down for all these primary conditions.

In a word, art should follow Nature in all her acts; and if she strives to get rid of distinct poisons taken into the body, it is the duty of the physician to act in a like beneficial way, when the system is under a self-generated poison, forming a basis for a course of disease of itself spontaneous, or presenting germs or fuel to be acted on by any fresh or exciting causes.

The symptoms enumerated in the various states of the system after swallowing the direct poisons, or from bites, stings, and punctures, or from inoculation, as well as the treatment of their primary or subsequently irritating and inflammatory actions, accord with the symptoms and treatment of many diseases to which the body is subject, and which have their origin in self-generated poisons in the blood; as well also as with those diseases, under the head of fevers—whether congestive or inflammatory—that result from the action of malarious influences on the system already depressed below the normal standard of health. To show this clearly, and also how truly the various stages of these active symptoms exhibit a marked consecutiveness, it will only be necessary to state the general symptoms and treatment of these latter, mentioning at the same time some of their exciting causes, which only add fuel to the fire.

Exciting Causes.—When the body is in health, it easily expels those external exciting actions which, on a departure therefrom, it attracts. This is the simple reason why it is affected at one time and not at another. When in a depressed condition, it is capable of being influenced by sudden changes of temperature; occasional intemperance; violent exercise; strong mental feelings; excessive irritability; depressing influences—as grief, anxiety, fear; checked perspiration; profuse evacuations; suppressed actions of any of the secretions; cold currents of air; sleeping in dews or night air; insufficient clothing or food, or food either of an improper character or not sufficiently varied; impure air in overcrowded apartments, in camps, gaols, hospitals, ships, &c. It may be similarly influenced, also, by a residence in certain localities—where simple rank vegetation abounds with much moisture; in others, where animal ordure or decomposing animal matter is present; or where there are open sewers and drains, stagnant pools and swamps, or pestiferous marshes, always redundant with living and dying insect life—consequently highly organic. Again, the pestiferous action may arise from the slag of burnt coal from furnaces, thrown into heaps, subject to moisture, and generating a most pernicious gas;* or else from some of the coaling stations in warm climates at certain seasons, where hot winds and a scorching sun, succeeding on heavy rains, are known to produce a most mephitic gas and to poison whole crews. Independently of all malaria and miasmata from any and every given source, certain countries are more productive of disease to Europeans than others from pure climatorial influences; all of which are perfectly under human control, if first principles are attended to and such precepts followed as man has it in his power to adopt. Nevertheless, just as the lazy and improvident deplore their poverty and their rags—which are perfectly within their own power to alter—so, even the best are too apt to ascribe to Providence or to fate what they themselves might alter or at least mitigate were they less wrapped in prejudice, or had more expansive and more impressive minds.

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* The slag, or small dust in coal mines, generates the fire damp; and considering the immense consumption of coal in the present day, I cannot but feel surprised that this should be suffered to remain in the mine to the great danger of the miners, when by a little chemical process and proper manipulation it could be compressed into solid bricks capable of slow combustion, but evolving

Thus we see the exciting causes acting continually upon all subjects apt for their reception—that is, when they are empirically called *predisposed*, but who, more philosophically and truly speaking, have departed from the standard of health, a return to which is perfectly within human power by simply understanding and being guided by the indications and appearances of the tongue; for no other means can point out so well the general condition of every man's system, and demonstrate why one should be affected and another escape.

SYMPTOMS :—The next points to be considered are the symptoms which are first set up in the system, indicating the presence of a self-generated poison, ready to burst forth spontaneously into disease, or excite actions that become rapidly more and more developed,—thus showing how Nature endeavours to rid herself of them, as well as of the many bodily and mental actions they assume. These are nausea and vomiting; lassitude, languor, and prostration of strength; anxiety; faintings; hiccough; shivering; aching pains over the whole body, especially in the back and loins; heats and flushes; slight thirst;

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an immense heating power,—offering in this state great facilities for economy of package in ships' bunkers, and furnishing excellent fuel during long voyages.

sour or foul breath; scanty urine, and costiveness of the bowels; short, hurried, and anxious respirations; dejection of mind and morbid sensibility; loss of appetite; giddiness and pains in the head; suffused redness of the eyes, and throbbing of the arteries in the head and neck; coldness of the extremities; clammy sweats succeeded by burning heats; confusion of thought and forgetfulness; low mutterings; slight convulsions; an universal uneasiness and inability to follow ordinary pursuits, and general malaise.

The tongue in these cases is tremulous; at first furred and moist, and, according to circumstances, varied in colour;—the thicker the fur, the greater being the evil about to ensue; but if it is yellow, bile has regurgitated into the stomach. If the tongue be simply white, without much fur, then less evil ensues. If intensely loaded with fur, and the fever increases, it soon becomes dry, hard, and brown; and thirst is more intense. Still, whatever condition the tongue may be in, if dry, there is always thirst. It may become alternately dry and moist, as Nature makes efforts to rid the system of the poison, and thirst even may ensue without much fever; though in ordinary cases fever and thirst go together. The pulse is at the same time full, quick, and labouring.

All these symptoms will become aggravated, and a depressed state of all the appreciating senses ensue; the taste is completely vitiated; the hearing is less acute, with singing in the ears; the power of sight, too, is impaired, accompanied by inability to look long together at any object, and nothing seems to please them; the power of smell is depreciated or lost, and the mind is full of wayward fancies. The skin again is tender and sore to the touch, becoming rough and *goosy;* the natural powers of appreciation seem extinct; temporary loss of reason often occurs, with delirium more or less violent; and a burning pungent heat of the skin succeeds. Then ensues an arrest of all secretions, implying the arrest as well of functional actions of organs,—those especially that constitute the excrementitious portions having no power of elimination from the system.

Thus all the organs of the body concerned in the functions of digestion, appropriation, or assimilation, together with the whole alimentary tract, are deeply affected. All the membranes, wherever situated, and vessels of all denominations; the coverings and sheaths of nerves as well as nerves and brain; all organs and solid constituents of whatever kind;—all become affected more or less. In short, no part escapes the baneful influence of the morbid poison. If, therefore, Nature be so strong as to counteract the poison, and gradually restore the system, it is at the expense of certain destructive effects on given organs; and if there is insufficient power to resist the poison, death closes the scene.

TREATMENT:—Nature and Art seem to be agreed on a few points,—namely, that some symptoms and modes of treatment appear to be closely analogous. Thus, nausea and vomiting are both symptoms and curative actions combined. Both, as you may have seen, enter into the majority of almost all artificial and natural poisonings, and in all these cases may be considered as means to free the system from offending matter. Their beneficial action in both instances is undoubted;—but there is an important circumstance to be considered even in this. When substances are eaten and the stomach rejects them, it has something to act upon; but when the secretions alone act as poisoning and irritating agents on the coats of the stomach, and vomiting ensues, it is often an useless act; because the stomach collapses on itself, and is unable to disengage the morbid or noxious elements. In such cases, then, these actions are mainly indicative of the general state of the congested mucous membrane throughout the whole alimentary canal.

Art then acts wisely, when it fills the stomach with such aliment as can be easily rejected, and which, by first mixing with the morbid matter, gives it a chance of being dislodged. Without this, the natural vomiting alone hastens inflammatory and painful results. If we wish to be understood, we must not speak of any treatment without giving at the same time fair and cogent reasons for our intentions. It will be necessary, therefore, to recall to the reader's mind the treatment which the chemists and chemical physicians have pointed out as the best means for relieving the system from the actual presence of poisons swallowed in bulk, and to show the after-effects produced thereby—whether they were of a congestive or acid character, or from their irritating qualities had produced inflammatory and febrile actions, followed, under certain circumstances, by eruptions on the skin. From these latter facts we have a right to presume that the blood had been so far contaminated, that the skin proved a convenient outlet for such elements, which, had they remained in the system, would have continued to poison it; whereas, when they have been once excited, the blood becomes freed from these insidious poisons.

The first character of all fevers is without doubt congestive; and consequently there exist rapidly decomposing elements, producing highly poisonous states of the secretions; from which condition we have seen the foregoing symptoms. Emetics are therefore called for; and I need not remind those who have seen that which is vomited, or appeal to the taste and sensations of those who have vomited under such conditions, how intensely acid, acrid, bitter, and nauseous all such matter is; —indeed there seems to be enough to poison half a dozen people. How necessary is it, then, to get it away!—and how true is the observation that vomitings or emetics often check a fever or cause it to assume a milder type! There, then, natural poisoning may occur by self-generated acids, as much as by being taken into the system bodily. It is not likely, however, that the system should clear itself at once of these by a vomit; indeed, as the tongue will most assuredly point out, that excess of acid will still remain after the vomiting.

Under such circumstances, we scarcely require the warnings of the chemists, that the alkalis should be administered as soon after as possible; for common sense suggests their adoption. When promptly given, they have so specific an influence on the system, as often to obviate the necessity of abstracting blood; because those very elements, which would have induced active inflammation, have been removed or otherwise destroyed. In freeing, then, the system quickly from its poisons, the use of tartarised antimony will be found beneficial in keeping up nausea; for then no great collections of morbid elements can take place.

Now neglected symptoms, as a matter of course, lead to great evils;—for, though in the first instance we may not be always successful, and fever may run on, yet, in these latter cases, it gets ahead, before we have time to counteract it; in fact, in most cases the physician does not see the case, until Nature has resorted to the only means in her own power for ridding the system of these poisonous elements. She may not, indeed, have succeeded in her first efforts, namely, by vomiting; but she has succeeded in perfectly absorbing all the acid and acrid elements, wherever they could be taken from first sources, and in carrying them into the blood, to her own injury. This, however, is acting perfectly in accordance with her laws, though at a great risk; for she has then produced terrific inflammatory actions, wherever they could locate themselves; and thus, having removed the original cause from one position to another, she sets to work immediately at repairing the effects of her own intemperate haste.

In addition to the acid treatment, anodynes have to be administered; and these are most valuable agents, because they arrest Nature in her precipitate haste, which is often fatal. If she can by any means stop her inordinate actions, some favourable circumstances have occurred, such as the patient denuding himself of clothing and thereby getting the benefit of cold air;—for cold to inflammations and fevers is almost synonymous in its action with opium or anodynes, inasmuch as it opposes an antagonistic power. All these matters, then, are simple enough, and need not be so overrated.

These two actions, then, of the direct poisons and poisoning by self-generated secretions, may be well defined, and there can be no doubt as to their proper treatment. Yet there are indistinct actions attending them,—actions arising from the simple necessity for a maintenance of the balance of health. In all such cases, then, the tongue, better than any other indications of the state and condition of the system, will point out what these are, and in all the varieties of self-generated poisons which produce disease in the system, will suggest the suitable remedy.

Wherever you may have seen the direct poisons producing a depressing influence upon the nervous system, stimulants, such as æther, or camphor, or other diffusible substances, are used; so also in the depressing influences resulting from the effects of the naturally-generated poisons, æther, camphor, and such-like applications, are most just and reasonable to be adopted.

Where artificial poisoning has been attempted, accidentally or otherwise, Nature does her best to remedy and counteract it but art must quickly be called in aid. Where naturally generated poisons affect the system, Nature herself is already present as her own physician; and it is in her endeavours to get rid of these morbid elements, that we see the vast and varied amount of disease which the human body exhibits; for any one of these is but her effort to cure. Whenever she can do this by fluxes of any kind, either bleedings, purgings, or vomitings, she does; her next actions are functional disturbances of organs; her last resorts are organic diseases.

She has, however, yet another organ to which she can fly as a last resource—the very largest in the body, through which she exerts powerfully beneficial influences—and that organ is the SKIN. Indeed, whenever morbid elements get mixed with and circulate in the blood, and Nature cannot eradicate them by the above actions, she has her remedy and her treatment of them in her army of skin diseases. Distinctive and insidious poisonous elements in the blood exude from the skin in every variety of form; and if art has its counter-irritants as remedies, we must allow that these are natural acts. In short, whether these morbid elements produce a great variety of pains in the body, both internally and externally, in all the varieties of rheumatism and gout, or come to the surface in the form of eruptions, morbific poisons are the cause. These, then, will require a separate notice.

SKIN ERUPTIONS.—Considering how great is the variety of these eruptions, we shall have abundant reason to marvel at their many phenomena, as well as their causes and results. Two distinct ends are evidently attained by them,—one a naturally curative action of a chemico-vital character, the other simply mechanical. Thus, on the one hand, these eruptions purge the blood from a morbid poison, and on the other, allay or remove pain from the parts, over which they appear, by a species of counter-irritation. This act is imitated by art, when blisters, mustard-plaisters, stimulating ointments, &c., are used to cause irritating actions, pustules, or vesicles, but which are seldom followed by similarly beneficial results. A third action, moreover, is apparent—namely, that resulting from distinct disease of the skin itself, irrespective of any curative or mechanical design that Nature might exhibit herself.

It has already been noticed that the internal lining of the entire body is a skin that is always moist, while the external skin is a similar covering, but always dry. Whether, therefore, we consider the one a moist skin or the other a dry mucous membrane, it is certain that both have many analogies. Indeed, it is far from improbable that many internal disorders which baffle the treatment of the most experienced physicians, and to which they can give no definite or distinctive name, arise from some irritation, or probably some eruptive action, or some want of action in some part of the internal lining membrane; and the true characteristics of these diseases it were impossible to discover, as they never affect the life of the patient. Much of this I have reason to suspect from many incidental peculiarities of the tongue, which I have not been able to refer to any other source; and it must be admitted by the wisest and most experienced, that the true character of many external eruptions is mistaken, as regards one or other of these three actions:—First, whether they are efforts of Nature to throw out of the system a morbid poison; secondly, whether they are for the time a simple mechanical counteraction; or lastly, whether they involve a disease of the organ itself, with which neither of the two former have much to do.

That morbid poisons are generated in the blood at a very early age there can be no manner of doubt. Their earliest appearance in infants is indicated by the presence of red-gum and white-gum, which I have elsewhere instanced as beneficial actions rather than the reverse, and showing a state of natural vigour and health rather than the contrary. As life advances, the various rashes or irritations set up in the system during the process of boning or cutting the teeth evidence a morbid alteration of chemical elements in the blood. Others, again, are evidently caused by acescent and acrid reactions, showing at how early a period an excess over the legitimate predominance of acid may take place, and how necessary it is in the artificial existence of man, that these should be corrected in their first stages. The wisest and most judicious writers on infantile diseases have also borne ample testimony thereto; yet, on the other hand, some persons less judicious have gained the ear of others equally thoughtless with themselves, by suggesting remedies that have neither science nor common sense to support them, and, in the absence of both, only add to the evil by gross and improper drugging.

It is the poison that gathers and accumulates in the blood, again, which insidiously produces the infantile congestive or inflammatory fevers, — such as the eruption accompanying measles, which almost invariably breaks out on the upper part of the body, having its two distinct actions,—namely, to throw out of the system as much as possible of the poisonous elements of the blood through the external skin, while the internal skin is brought into the said service, especially as regards the lungs. At the same time, also, a full and early eruption mechanically relieves these latter vital parts. Nothing, indeed, can be more true than this; for, if the eruption does not come out freely on the chest and upper parts of the body, or if, when coming out, it is at all checked, the lungs themselves become so engorged, that danger soon sets in; when resort must be had to active vomitings, blood-letting, leeches, or otherwise, or else to blisters or other counter-irritants, in the absence of Nature's better and wiser course.

The chicken-pock, glass-pock, swine-pock, and even small-pox itself, are but so many efforts of Nature to throw off poisonous elements in the blood through the external skin,—noxious elements that might have been relieved in the simplest way by care and attention, but which have been produed by overfeeding, or by what is akin to it—namely, directing attacks at this early age, by the falsest doctrine ever devised, to the liver and bowels, through the use of the mercurials; as if it were possible that children, and especially infants, could reasonably have their young livers in such a condition, as to require such gross and violent irritation.

The fact is, that where children puke and vomit, they never need a doctor; and even, should they not exhibit these symptoms, all they want is a little ipecacuanha and magnesia. Their systems should be cleansed from the upper sources, and thus restored to a natural and healthy condition; whereas, when this is neglected, and they are purged and mercurialised, they have very soon more poison put into them, than ever Nature would have generated of herself, besides opposing all her own beautiful laws, by which she rids herself of mischievous elements. The more, indeed, the upper works of children are cleansed through the mouth, the less do they require actual purging through the bowels. After measles, poisonous elements will remain latent in the blood, as will be evinced by swollen upper lips and scabby sores about the face, mouth, ears, skin, &c.;—in which case, it is good policy to keep the bowels relaxed by simple medicines. Should these secondary eruptions, however, appear the second time, the treatment should once more be directed to the stomach, and vomits and alkalis more relied on than aperients.

As we ascend the scale of life and power increases, the very same poisonous elements in the blood that produced measles, will now produce scarlet fever; for, as I have hinted elsewhere, all the acescent and acid elements will become rapidly absorbed. Children, if over-fed, or from want of power to get rid of the contents of their stomachs, or thirdly, from irritation produced by curdy milk, may generate, for instance, by some sudden action, a rash all over the body, attended with a disposition to convulsions. If Nature assists them by spontaneous vomitings, the cause and the poison so suddenly generated at once vanish together, and speedily carry away with them the eruption on the skin. If, however, she should fail in this, Art must do it in her behalf as quickly as possible.

When this is not done, and, as frequently happens, purging medicines or alterative mercurial doses are administered, disease is then, as it were, manufactured by drugs, and the child may be lost ;—nay, if saved, it is so more by chance than otherwise. Nevertheless, when all these ailments have been treated by simple and judicious formulæ, no great credit is ever attached to the doctor. On the contrary, I have often seen more credit given to the unscientific quack, who has produced illness by drugs, than to the more reflective practitioner who has saved life and a thousand anxieties by a truly philosophical management of the case. The public generally know nothing of these things ; and it is for their information especially that I write, if they will not be too wilfully blind to see who are their real and best friends ; though they often value them least and reward them most poorly, because they appear to have done so little. Would that the true relative values of these two modes of practice were better understood ! To return : the presence of some form or other of rash or skin-disease is very common in children ; and when this does come to their relief, internal disturbance takes place of a more serious and dangerous character, or else the poison remains latent in the system—destined to mature and destroy at a more advanced period of life.

The various eruptions so prevalent on the head and scalp of children are evidently curative in throwing out morbid humours from the blood, as well as by becoming mechanical counter-irritants,—especially as they occur at a time of life when it may be reasonably supposed that such a part as the head is undergoing, externally, great physical, and internally, great moral, changes. All the forms of skin-eruptions on the head—from simple dandriff to ringworm and scall, sores behind the ears, and purulent discharges therefrom—all betoken a poison in the blood—that part over which the eruption spreads being the most active, and seeking relief by counter-irritation. The minds of youths are influenced by new and important culture ; and whether the brain be receiving general impressions from without, or generating within itself new thoughts, new passions and desires, with the thousand schemes of youth, it is equally subject to great and novel actions. These eruptions, then, irrespective of any contagious actions, are not unfrequently beneficial, however annoying or mal-à-propos they may be to the sufferer. They, nevertheless, have certain beneficial results, especially in those by whom they are self-generated. Great precocity seems to have a counteracting influence on these diseases, which, in turn, relieve the too rapidly developing powers of the mind by their opposing influences.

Boys seem to be more frequently the subjects of these early eruptions than girls ; and, whether this arises from their grosser natures, or more general activity of mind and body, or from more robust and vigorous exercises, subjecting them to greater extremes of heat and cold, it seems impossible to say; but these matters, no doubt, bear greatly on the subject, and have their corresponding influences. Their external skin seems to bear a greater share of disease to the relief of their internal structures, while the weaker sex have more frequently their internal functional disturbances; though they all alike arise from the same peculiar self-generated poisons incidental to the human system in all stages of life.

As we again ascend the scale of life, young men and women will show pimply eruptions on the face, and get rosy rashes, nettle-rashes, irritative and pruriginous actions, prickly heats, and miliary eruptions—all betokening changes of blood about the time when fresh organs are first called into activity. These new actions, indeed, evidently affect the properties of the vital currents, which have to eliminate new secretions, the due performance of which disturbs the previous regularity; and any excess in them shows itself unmistakably in many forms in either sex. Nettle-rash in adults, for instance, appears nearly allied to the sudden rashes which in infants and young children arise from acescency, crudities, acid and acrid elements in the stomach and first digestive passages.

Nettle-rash comes out suddenly, and may be as suddenly checked, if emetics be given at first; nor did I ever know nettle-rash thoroughly cured artificially—that is, by medicine, except by emetics. The disease, however, may wear itself out after weeks or even months of troublesome companionship. No aperients will cure it. It will leave in the day-time, but return, when the patient is warm in bed, or after a little exercise, when the blood is warmed. In short, this latent poison is very troublesome. Shingles, again, are more common in adult life than vigorous, active boyhood. They seldom descend below the crest of the hip; but all the upper part of the body to the neck is subject to them. They are exceedingly irritable, and go half-way round the body from a front central line to the spine. Goulard's lotion constantly applied relieves them as much as anything, while alkaline medicines are the best internal remedies. Aperients here do little good.

All these primary forms of skin-disease seem to be the sudden realisation of poisonous elements in the blood, guided by certain laws, appearing over organs and parts requiring relief, and thus acting as counter-irritants. There can be little doubt but anxieties, troubles, vexations, care, grief, and other morbid affections of the mind affect the blood; for mind and matter can never be separated. We have ample reason, indeed, for knowing that the state of the secretions affects the mind as much as the secretions are affected by the mind.

In illustration of this, we may mention what takes place in commerce of the worst character—namely, slave-dealing. The effect of tearing the aborigines of a country from their homes and families, is greatly to depress their low, untutored minds, and make them, through regret for their lost homes, pine away and die from the disease called *Nostalgia*, or love of the country to which they can never hope to return—so strongly are their nervous sympathies affected without any corresponding power of resistance. For this disease, however, the slave-dealers have discovered an effective remedy in the shape of a counter-irritant, and, while shipping their living cargo for the mid-passage, intersperse among them some that are infested with the *Itch*, which of course is speedily communicated to all the rest; and so intense is their desire, so active are their endeavours to allay the irritation in the usual way, that their thoughts become diverted from their mental malady.

I may here remark that the itch is one of those diseases peculiar perhaps to the skin itself, and not originating from a poison generated in the blood. It occurs chiefly among the poor, the squalid, and those who are negligent of personal cleanliness. It is, in short, one of the most powerfully contagious actions that the skin itself can assume, and is vulgarly called "the Scotch-fiddle,"—no doubt for very good reasons. Allied to it, also, is a peculiar mental and nervous affection, where no eruption takes place, though still attended by crawling sensations, not inaptly called "the Fidgets," in which no position of the body, no mental occupation, can be retained for any length of time together.

There are several forms of skin-eruptions, vulgarly termed "itch." Thus, cooks and poulterers get it from picking and preparing game during the season; bricklayers from the hair and lime they use: laundresses from the use of caustic soaps and potass; tailors from the garments which are given them to repair; also sempstresses and upholsterers from their many duties in making mattresses, cleaning flock and horsehair, and stuffing cushions or beds therewith. Bakers, again, get a peculiar itch from the flour and dough that they handle; chimney-sweepers from the irritating effects of the soot on the skin; packers, sorters, and overlayers of raw sugars; and no doubt many artisans and labourers besides, suffer more or less from these unsightly eruptions. All these affections of the skin, however, unless allowed too long a continuance, so as to affect the system itself by inoculation, subside as soon as their causes are removed. The application of the zinc and elder-flower ointments, with Goulard's extract, allays the irritation, and cures very quickly.

Some forms of skin-disease originate in a vesicle, which breaks and discharges a humour; and the surrounding parts become inflamed as well. These are often difficult to heal; though they will generally yield to a stimulating ointment, such as the golden ointment, or red oxide of mercury. Others, again, form into scabs, from humours continually rising from below and encrusting at the base, with a show of more or less inflammation, and the scab itself rises, layer upon layer, forming a small cone; while, in other cases, small blebs spring up, as if the skin had been scalded or burnt. Three years ago I noticed a peculiar affection of this kind in newly-born infants, coming principally on the scalp. The first case being novel, I was inclined to attribute it to some parental cause, and treated it with unusual care, applying ointments, &c.; but when I met with another case in a different sphere of life, and then with a third, until for two years nearly every infant that came under my notice in all grades of society had these peculiar blebs, I thenceforward treated them, as if they had been simple scalds,—keeping them dry and from the air by means of flour or the common powder used for infants, but giving no medicine whatever. The bleb would come out, break, discharge its watery contents, and dry up, all in forty-eight hours, and there would end the affair. This simple process is all that I have found those cases to require.

Pimply eruptions on the face, with a copper-coloured base or occasionally exuding, are the effects of alcoholic poisons. The whole face will occasionally become large and jowly, at other times thin and drawn, with these specimens of "grog-blossoms." Frequently, however, the face, and especially the nose, becomes inordinately red, or what is called "copper-nose," which always betokens an acescent or acid state of the stomach, productive of a low, poisonous condition of the blood; though it is only fair to add that these appearances may in some cases be entirely unconnected with any indulgence in alcoholic liquors.

The tettery eruptions about the lips consequent on colds are often very annoying. A number of small watery heads will coalesce and unite themselves in a single sore: thus showing that a peculiar state of the blood at the termination of a cold will eliminate some of the poisonous elements of the former through the skin. Pimply spots, again, will appear on the skin, closely resembling the rupture of small blood-vessels. This is a species of *land-scurvy*, arising from low and poor living, or innutritious diet, from want of fresh, wholesome air in sleeping apartments, or from too many persons sleeping in the same room without a proper ventilation. The poison produced by salted meats, when forming the main article of diet long together, shows itself on the skin in the form of scurvy of a similar character, accompanied by sponginess and bleeding of the gums, but with a general muscular softening and great depression both of the bodily and mental powers.

*Scurvy* is peculiar to sailors; and when it occurs in either of the services—whether the royal navy or the mercantile marine

—it marks culpable neglect and a want of common humanity. Even in the present day the latter service is highly to be censured; for many men there are, who, entering it with originally strong constitutions, get the scurvy during their first or second voyage, and from being badly treated become permanently debilitated, laying the foundation for scrofulous habits of body that are duly propagated; so that, if they afterwards remove into the service of their country, they infect others, from being demoralised themselves. It is plain, then, that where science advances in improving the physical condition of mankind, the legislature should always march up to the parallels thus made. This is a precept that I have endeavoured elsewhere to inculcate, as one branch of the exercise of prescience.* There is much show of patriotism, much parade of a morbid philanthropy, in every session of parliament; but if any member of either house were to introduce a measure for preventing the use of salted meats more than twice a week on any voyage, he would justly earn a mural crown.

The necessity, in fact, for salted meats at all is vastly reduced by the practical modern discoveries that have been made in the chemistry and culinary preparation of prepared fresh meats; so that salt food should now be used simply as the exception, not as the rule. Nothing conduces so much to the *laissez aller* mode of procedure as idleness and want of vigorous thought in the directing heads of departments; for these influence all the lower grades, and give rise to a criminal indifference. The business of providing ships, especially in the mercantile marine, is left too much to the caprice of ignorant captains, who treat sailors as mere dogs. Routine and deep-seated habits are ever opposed to alterations and improvements of every kind whatever; and in the above case often constitute, as it were, a

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* The author is at this time (Dec., 1857) attending a young man lately arrived from China in one of the best-appointed ships belonging to one of the wealthiest and most respectable shipbrokers in London. He has only been four months on the voyage from China; but from the time the ship left that country till its arrival in England, the crew were on salt provisions, except one day in the week, called "fresh," when they had *soup and suet-pudding;* and this in the boasted nineteenth century!!!

*moral scurvy,* than which no disease, physical or moral, is more depressing and enervating, or has more pernicious and widespread consequences.

The effect of the varied poisons in the blood producing skin-diseases should lead to a very simple treatment of them; nor are any diseases so capable of being properly handled on broad and general principles as those, where the condition of the body is accurately indexed by the varied appearances of the tongue. Every kind of remedy seems hitherto to have been adopted on the combined experience of the best authorities;—as, for instance, alkalis and their carbonates; acids, anodynes, and opiates; mild and drastic purges; tonic and bitter infusions; emetics and medicines for inducing perspiration and action of the kidneys; neutral medicines and alteratives; calomel and the other preparations of mercury have in turn been tried, as a matter of course, as well as all forms of counter-irritants; besides which, baths, medicated and otherwise, are included in their treatment, together with external applications of every kind, lotions, ointments, washes, &c.; so that all and every variety of drugs have thus had their full share of notice and practical application, showing from their very opposite characters the opposite character of specific curative actions.

I may here remark, how much the union of a thousand minds has done to elicit some very important truths. Nevertheless, all their doctrines, all their practices, as well also as the multiplied forms and peculiar characters of all skin-diseases, as far as the eye can judge, necessitate a great effort of memory and corresponding amount of practical experience in this particular department. Their practice is at once empirical and enigmatical; for no philosophy is propounded, no broad principles are sought for, no general reasons are assigned, no logical inductions are made in any part of this vast department of the healing art, as respects either cause or effect, whether in disease or treatment, more than in any other branch of the great art and mystery of medicine. Yet, if analysed, the treatment of these complaints is sufficiently simple; because, as I have before noticed, the curative agents are few and distinct. In short, multitudinous as may be the remedies of the pharmacopœia, and handled as they are in every possible way, they are yet capable of simple reduction to a few general principles, as regards their effect on the human system.

Throughout the whole catalogue of poisons, which I have here brought together, of every class and form, we find but three general classes of medical and remedial actions. By taking the neutralising powers of one to oppose the other, the end of medicine is simply and more certainly obtained. In viewing disease generally, or skin-diseases in particular, we find everything dependent on simple facts and laws. A vast amount of disease originates from a self-generated poison in the blood. Various as diseases may be,—numerous as their divisions and orders, their vast, undefinable peculiarities and specialities,—yet all, when guided by good glossological indications, are capable of being readily understood and intelligibly arranged. In short, however numerous may be the correlative sciences that contribute to form a given standard and constitute true science,—yet after all, the crowning triumph, the great ultimatum is the successful treatment and effectual cure of disease; and this can never attain the useful and designed end, unless greater simplicity and unity of action characterise both theory and practice.

Poisons and poisonous drugs only complicate disease; and, if we would illustrate this, we need only notice the multiplied complications of skin-disease produced by the varied actions of syphilis and the mercurials. Both these cause a great disposition in the blood to generate morbid and specific poisons. In looking through the works of various authors on skin-diseases and their treatment, various and opposite as are all these, there is scarcely one, in which mercurials do not form a part of the medical treatment either externally or internally; and, if they are not directly used as part and parcel of the means to cure, yet so extraordinary is the rage for, and so persistent the use of mercury, that this drug in some shape or other forms a part in the mass of almost all aperient or alterative medicines. Now I hold that this cannot be sound doctrine; and so long as such indefensible and irregular practices last, no reform in medicine can possibly come to pass. The whole doctrine must at least be questioned, and, if wrong, condemned, antecedently to the erection of any new theory or the introduction of any regular philosophy.

Nothing new for the benefit of man ever came without some revolutionary action. Great fires make vacant spaces in large cities, and thus become the best ventilators of close and confined areas, or antiquated, useless fabrics. Revolutions shake old despotisms, and usher into being new monarchies better suited to the wants of specific nations. Nations engage in wars that rouse all men to arms, and always in the end with benefit to the arts and advancement of the world. Some barbarism is here the ultimate cause, and war is the disease; while on the other hand, a return to order and a higher state of civilisation constitutes a restoration to a healthy standard. Nothing, except what is commensurate with the wants and necessities of mankind, lasts beyond a certain time; and whatever does not advance, correct, or revolutionise itself, receives a rude shock from some unexpected quarter, which shakes it to its very centre.

So also the lurking poison is treason to the human system, which its natural laws seek to control, and often succeed in doing so without much tumult, or bloodshed, or constitutional rupture; yet in other cases it overcomes the government regulating the body, especially, if its allies—the drugs—aid the party they were designed to oppose—a fact too patent to need much comment. A nation, then, and its laws and people, may be aptly compared to the body, its secretions and its functions—and bad or obsolete laws, like improper drugs unsuited to the human system, or to correct its misdoings, are attended by equally pernicious consequences.

It is not improbable that every condition of the system, inconsistent with the law of health—namely, the steady and duly apportioned predominance of acid, is a state in which the system generates morbid chemical poisons. Even gout and rheumatism have their origin in these first stages; for it is the excess of those elements which produces the acid diathesis. Gout obtains its morbid elements rather from the poisonous properties of strong or alcoholic beverages than from any other source, and will most assuredly find its victim out at some stage of life, more or less advanced. College-indulgences and wine-parties, as well as all free living and excesses, will sooner or later tell their tale, as surely as they have had an existence. The elastic temperament and tonicity of youthful constitutions enable them to endure and surmount much; but they will early become subject to rheumatism, which is only the first round in this ladder of disease. Though the poisons here act rather mechanically than otherwise, they are nevertheless poisons; and no part of the body is free from their influences.

I have not mentioned their various effects in the chapter on headaches; though the head and scalp are equally affected. External pains of this region of the body are mere megrims, and the scalp and skin covering the skull are affected similarly with the skin or periosteum covering other bones. The free-liver, the consumer of many species of alcoholic liquors, according to the manner in which he has poisoned himself, will become the subject of periosteal rheumatism, than which no variety of that disease is more painful; besides which it is often the forerunner of *delirium-tremens* or drunkard's palsy, or even of insanity.

Rheumatic pains about the external coverings of the head have their origin in certain internal organisms, and those parts that are more affected than others are distinguished by being the seat of various internal headaches. The blood being thickened, the globular elements cannot pass through the more minute tubes of its vessels;—which hence become impacted and cause pain. Baths, sudorifics, emetics, and alkalis relieve them. The poison of gout, on the other hand, chiefly affects the bones, giving rise to chalk-formations, while in other cases it causes destruction of the vital character, with decay or mortification—called *necrosis*, or else a rottenness or ulceration of the bones, known as *caries*.

The self-generated poisons of the blood show themselves in a thousand forms and in every possible shape. All the causes of disease may be traced to its altered and deteriorated character, as compared with the normal standard of health, which consists in the harmonious working together of all profitable constituent principles always acting in their due integrity. When, therefore, derangement in its atoms takes place, and functional disease is *not* distinctly present, as has been previously noticed, but confines itself to the internal structures producing organic diseases—such as cancer and any other degenerate condition of organs—or relieves itself by means of fevers or inflammations, or again by any of the fluxes of the system, whether spontaneous vomitings, purgings and over secretions, or excretions of any organs;—in such cases the skin becomes the outlet for these disorders, giving rise to the many forms of eruptive diseases.

The state of the tongue, then, more than any other organ, indicates with certainty the general condition of the body and its secretions, as well frequently as of the particular parts or organs affected; and it leads, also, to an unerringly correct practice in the administration of remedies, deciding at once, as I have detailed at the end of the first chapter, whether these shall be acid, alkaline, or neutral. The appearance of the body and other means of diagnosis point out the necessity of inducing proper action on the skin; for Nature herself often produces spontaneous sweats for remedial and other purposes. In short, in all her efforts she acts simply and generally rather than specifically; and if we wish to do good, we must imitate these actions more closely, and seek to be less cunning, less knowing, less specific, and more broad and general, as well as more simple in our treatment.

However much science may delight in or find it necessary to characterise specific disease, and hunt it into every hole and corner of the body, dignifying it with a multitude of hard names and unintelligible terms, it is perhaps so far right to do this, as it might otherwise lose its interest; but nevertheless, the end of all this being to relieve suffering and remove disease from the living system, the wisest physicians, making inductions from their own practically developed observations, know and act upon the principle that there are really no such things as specific treatment or specific medicines; but that everything they give must work through the thousand laboratories of the body, and reach the point aimed at through a thousand others equally requiring relief; and in doing this, the great art, I maintain, is not to injure any single parts by producing counteracting diseases, as drugs often do, but rather to purify the first or primary secretions as fast as they are eliminated by the functions of organs, and to keep up this simple plan, until the whole fabric day by day has its constituent elements purified.

The poison which produces the disease, whatever it may be, and whatever special part it may attack, having been thus reduced and destroyed,—Nature acts along with the remedy with a sureness which we cannot witness without unmixed delight;—but when fresh disease starts up, indicated by fresh symptoms and new phenomena, we may be certain that some violence is ensuing from the remedies, and that disease and art are two to one against all natural curative actions.

Thus, it will be seen, that as all poisons taken in bulk into the system,—or by inoculation,—or through the respiratory organs, produce certain effects therein;—so likewise the system itself generates poisons which have similar effects;—and if a careful investigation were made into the empirical treatment of both, they would be found very similar also. The chief good to be done consists in checking the first disposition, and removing primary causes;—but I maintain that many of our practices, as recorded in books, and taught at the schools, actually add to the mischief, and so give the physician more to do in his vocation and the patient more suffering. As this does not occur from design, as every one who knows the character and general kindness of the medical body must admit, it can only arise from slavish and bigoted routines, which the sooner they are made apparent, the better it will be for all parties.

To conclude, what is done, should be simple and capable of a philosophical solution, and the effects of remedies be known and susceptible of explanation as regards their operations and results. Should the reader as one of the million seek to do good by private physicking, and knows nothing but broad general rules, he cannot err in giving simple remedies, selected from the few I have placed before him, under the head of "PHARMACOPŒIA AND ART OF PRESCRIBING."

# CHAPTER X.

## HEADACHES: THEIR VARIETIES AND CAUSES.

Headaches popularly, but wrongly supposed to arise solely from the brain—The author's views generally stated—The *vertex*-headache of females, and its cause—*Occipital* headache, or ache at the back of the head; aches at the side of the head; *frontal* headaches; *temporal* headaches; and their causes—Characters of headache: secondary causes and effects of different kinds of headache—Injuries at the extremities, how affecting the head—Remarks on temporal headache, as caused by affections of the brain—Convivial headaches—General conclusions.

In popular parlance a headache is a headache, and nothing more. Everybody has had headaches in his time; and, therefore, everybody imagines that he knows all comprehended in the term, and needs no further information about them. It is my wish, however, to dissipate this common error, and substitute in its place a few useful and wholesome truths, to which I would request the reader's attention, endeavouring at the same time to show him that there is far more significance attachable to the term "HEADACHE," than he may have hitherto supposed.

All medical art (for as yet it is no science) is based on observation tested by experience; and the experience of the many evolves certain facts which, in time, furnish a foundation for the rules and principles of medical practice. Headaches, like all other affections of the human frame, have had their share of attention; yet the observations which I am about to record are not to be found (so far as I am aware) in any book on the subject, though the phenomena on which they are founded must have been as patent to other observers as to myself. For this reason, and from the sense I entertain of their practical value—especially to the non-medical reader—I am induced to lay them before the public.

Headaches are popularly supposed to have their origin in various affections or disturbances of the brain itself, or else to arise from external impressions. This is true, however, only to a limited extent; the fact being that they are oftener to be traced to the relaxed or disordered condition of organs situated in other and more distant parts of the body. The sympathy existing between various portions of the human frame remote from each other is, indeed, so great, that a part which is apparently in no way connected with the seat of an injury or laceration, will sometimes be more morbidly affected than the seat of injury itself. In practice this is constantly occurring; and the fact that it does so occur, is of the first importance with reference to the subject of headaches. In what follows, the reader will be so good as not to confound the term "headache" with delirium, heavy sleep, drowsiness, trance or coma, or fainting, vertigo or dizziness—as all these are distinct actions. My intention here is to speak simply of headaches; and as aches occur in different parts of the head, to locate them with reference to their originating causes in connexion with distant organs or parts of the body, and this in accordance with the experience which my own observations have afforded me. The practitioner who has had much to do with the disorders of the female sex, knows, that in the headaches, of which they most frequently complain, the aching pain is chiefly confined to the top or vertex. There is often a sensation of heavy weight there, which, nevertheless, is much relieved by pressure. The part is hot, burning, and quivering; there is a trickling, crawling kind of sensation over it; but still it is pretty generally confined to the same spot. It is temporarily relieved by cold lotions, and cold water is resorted to; but the sodden folds of linen are soon dried by the heat of the part. Now, it is remarkable that the male sex never suffer from headache in this part, or at most so rarely, that I am justified in ignoring the fact if it does exist; while there are not ten per cent. of females who are not subject to it at some time or other from the period of puberty upwards.

This fact, I believe, is to some extent, well known; but if we ask the reason or cause of it, the only answer we get is, that this kind of headache is purely a feminine symptom, and as such, referable to some irregular uterine action. This answer, though perhaps little satisfactory, is perfectly true; for as these headaches never occur to the male, and are rarely escaped by the female sex, the conclusion arrived at is inevitable. But why, or how does a vertex-headache indicate uterine disturbances, or what is the connexion between the two organs directly or indirectly? I confess that I have no solution of the mystery to offer. I should, indeed, very much like to get at the philosophy of the business, if that were practicable; but it is not, and therefore I am obliged to be content with the fact as others find it, and as I find it also. But there is no reason why, since such a fact as this is so well known and recognised in experience, other and analogous facts indicated by analogous phenomena should be ignored.

As one part of the head, therefore, is thus singled out and acknowledged to have its diagnostic uses, I claim the same regard and acknowledgment for other parts as distinctively referable to other organs of the body—and that alike in both sexes. If I am asked my reasons for making such a claim, I reply, that observation and experience during many years have led to my convictions on the subject, and that, in the present state of medical science, or no-science, I cannot be expected to point to a philosophical basis for phenomena admitted to be unexplainable. I shall, therefore, proceed to detail the results of my observations in this matter.

I have found, then, that when the headache is confined to the posterior part of the head, it is indicative of derangement more or less severe in the stomach and primary organs of digestion; when the pain is situated in the parietal portions or sides of the head, the secondary organs of digestion, the biliary or chylopoietic viscera and all those parts below the stomach, with which the secondary acts have to do, are at fault; when the frontal or fore part of the head has ached, the pain originates from the large intestines; and when the temples have been the seat of the headache (in which case it is accompanied by sharp lancinating pains) the brain itself or its coverings are the seat of the disorder. If these things be so, the reader will see how important is the knowledge to be derived from the simple facts stated in this chapter, and of what advantage it may be to himself to be able to discriminate in his own case.

In addition to such local headaches, however, there are others of a totally different kind, less reducible to rule,—because more varied in character. There is the dull, heavy headache—the sick headache—the splitting headache, as though the skull would burst; there is the raging hot headache, which is to be relieved by nothing but cold applications;—there is the shooting headache, as if the sufferer had tic-doloureux in the brain itself;—there is the nervous headache, in which the least noise is a source of intense torture;—there is the headache that is tolerant of all flavours and odours, and the headache that is tolerant of none;—there is the throbbing and beating headache, and there is the dull and stupifying headache, which annoys chiefly from its persistency and incapacitating effect;—there is the headache accompanied by noises in the ears—there is the thumping, hammering, racking headache, as if Vulcan himself had his forge and bellows in the brain;—there is the moderate headache, in spite of which, though with much discomfort, you can pursue your daily avocations; and, last of all, the headache that prostrates you and renders you incapable of anything.

I have said that the frontal headache indicates disorder in the large intestines. This may consist of diarrhœa from congestive or inflammatory action in those viscera; from dysentery, hæmorrhoids or piles, costiveness, wounds, &c. But, wanting these causes, the frontal headache will result also from injury to the lower extremities, such as foot-sores, painful corns or bunions, or even from over-fatigue in walking. A tight boot or a shoe that pinches will sometimes cause a frontal headache; and in such a case the pain will be more severe in this appreciating portion of the brain than it is at the seat of the injury. Note also, that although in gout the whole system becomes painfully sensitive, the chief seat—not of the headache, but of the appreciation of its pain—is the front part of the head. Again, in injuries or affections of the lower extremities, we often see them producing corresponding injuries in other parts;—as, for instance, sores, wounds, and diseases of the feet and toes, not unfrequently cause abscesses in the groin and irritation in the large intestines, as well as *frontal headache*—the reason being, that their sympathetic action travels upwards with the speed of the electric telegraph, leaving its impressions at various stations. Such phenomena would seem to teach us, that the sympathetic medium connecting the front brain with the lower extremities is itself liable to be morbidly affected by injury to the other.

Now, the posterior or back part of the head is not affected by the causes above mentioned; but we find that it is affected by indigestion. Some portion of a meal, when taken into the stomach, has not been digested, and the flavour of it constantly on the palate shows that it is not clear of the primary process. Headache of the back part ensues; then there is fulness in the throat; the glands assisting in the first act of mastication get into a congested state, and there is an abnormal secretion of phlegm—all pointing to the vitiated condition of the primary processes of digestion.

I remarked above, that injuries of the lower extremities tend to repeat themselves in other parts,—as, for instance, the groin; and the same remark applies to injuries of the upper extremities. Thus, a whitlow, or diseased and poisoned finger, will not uncommonly give rise to an abscess under the arm or in the armpit; though if it produce irritation of the viscera it will not be in the large intestines, as was the case with injuries of the lower extremities, but in the stomach, causing nausea and loathing of food. Neither will it produce frontal headache; but the head will ache at the back part, if at all. As a general rule, it will be found, that injuries to the lower extremities affect more immediately the reasoning portion of the brain and the large intestines; while corresponding injuries to the upper extremities affect the more instinctive or animal organs, as the stomach and small posterior brain, or cerebellum. Thus you will find that, generally speaking, there will be a greater power of enduring pain from injuries in the upper part or extremities than in the lower. As a further illustration of this, I may mention the fact, that, while lock-jaw will be oftener produced by injuries to the hand and fingers than by those to the feet and toes, without affecting the lungs;—injuries to the lower extremities will affect the lungs alone in their very substance, and give rise to the most formidable disease which those organs can sustain, namely, *pneumonia*, which, if the injuries are great, may even prove fatal.

When chylification is inefficiently carried on, or, in other words, when the proceeds of the stomach are acted on by the bile, and an imperfect mass is forwarded through the small intestines—in that case the sides of the head become the seat of the headache. This headache, however, will be found to be often combined with frontal or occipital headache;—and the reason is, that the functional derangement giving rise to it, is often attended with corresponding derangement in the stomach above, or large intestines below, indicated by the presence of pain of the head in the parts referred to.

Lastly,—as to the temporal headache, or pains in the temples, this is the rarest of all headaches;—and its rarity shows that the brain is not very often, comparatively speaking, a seat of disease either in itself or its coverings. When temporal headache occurs, it will generally be traced to causes which produce direct affections and disease of the parts, such as blows, falls, &c., and will be found rarely to occur spontaneously, or from any of the causes usually producing headache. In congestive action of the brain or its coverings, causing temporal headaches, the sensation will be more of a dull, heavy, fixed character, and the edges of the tongue will be furred, of any colour, or they will be serrated; whereas, when those parts ache from inflammatory action of the brain or of its coverings, the pains will be sharp and lancinating, and often most acute, attended with delirium from excess of pain. The edges of the tongue will then be red and clean, or glary red; and this condition of it is always accompanied by a red tip as well.

The brain, or its coverings, by a mysterious and beneficent provision of Nature, is not affected by actual disease, until disturbance has become universal throughout the system, and in some of its congestive or inflammatory actions has traversed the whole frame, reserving this organ for its last attack.

I trust I have now said enough to show that the theory which attributes all headaches to affections of the brain is not based on truth, or any natural laws; and I am confident that the reader who for any length of time shall test the assertions here made by his own experience, will arrive at the conviction that it is only when the headache occurs in one or both of the temples, that the brain or its coverings is the seat of the disorder.

Thus much for local headaches. Convivial men, however, know too well that we are occasionally the subjects of headaches extending over the whole cranium—back, front, sides, temples and all. The exciting causes are various; but I shall not be wrong in attributing such headaches in the majority of instances to convivial excess and over-indulgence at the table. As a people, we are, beyond all other civilised nations, given to social gormandising, and as a consequence are familiar with the penalties it entails. The *bon-vivant* sits down to table to enjoy himself. He overloads his stomach with rich and luxurious viands, and therefore to hasten their passage through it, he stimulates it with alcoholic beverages. The food is thus propelled prematurely into the small intestines; which, goaded by the pressure from above, have not time to perform their functions completely, but pass on the semi-digested mass into the large intestines, until the whole of the alimentary canal is overloaded and distended. Then comes the after-dinner wine, communicating an abnormal stimulus to the blood-vessels;—and the orgies are consummated by the advent of a headache, which throbs, and thumps, and rages, threatening to burst the very skull asunder.

Yet outraged Nature is merciful: the large intestines act, and then the forehead is relieved; or it may be that a fast on the following day, arising from inability to taste food, has given time for the acoholic fumes to evaporate, so that the temples are relieved. The sides of the head are next relieved; because the small intestines, having little to do, have had time to recover their tone. The last remaining effect of the debauch is headache in the occipital, or back part, which first resolves itself into a dull heavy weight, or pressure, and at length subsides,—a consummation which is sometimes hastened by a vomit,—a most fortunate occurrence, which relieves the stomach of much heavy work.

I may add, moreover, that by a little attention to the facts above set forth, the people,—the million—for whom these remarks are intended, will be enabled henceforth to exercise an useful discrimination on the subject of headaches. They add a value to diagnosis in all cases where pains in the head can be localised, and point out organs and localities which are the seat of disease. Long practice has convinced me of the truth and value of the simple principles here laid down; and all I request of my readers is to test them for themselves. Let the subject of a headache henceforward localise the pains that annoy him, and accept the indications they afford as pointing to the proper remedies to be adopted in his case. If he will do that, he will find that I am right in apportioning

THE FOREHEAD OR FRONTAL PART OF THE HEAD—
TO
THE LARGE INTESTINES AND LOWER EXTREMITIES:

THE BACK OR OCCIPITAL PART OF THE HEAD—
TO
THE STOMACH AND UPPER EXTREMITIES:

THE SIDES OR PARIETAL PORTIONS OF THE HEAD—
TO
THE BILIARY ORGANS, OR SECONDARY PARTS CONCERNED IN DIGESTION:

THE TOP OR VERTEX OF THE HEAD—
TO
THE UTERINE ORGANS:

THE TEMPLES—
TO
THE BRAIN ITSELF, OR ITS COVERINGS.

# CHAPTER XI.

## THE MIND AND THE NERVES.

Nerves distinctive of animal life—Nerves of two kinds; motion and sensation—Sensation proportioned to the size of the nerves—Instinct ascends by gradation—Reason given to man alone—Nerves of sensation cause pleasure, pain, &c.—Character and disposition dependent on the amount and arrangement of nervous matter—Union of opposite passions in the same mind—Progress of depravation in minds—The engineering and mechanical mind—Genius defined and eulogised—PRESCIENCE, its value illustrated—Original and imitative minds; illustrations—The prevailing mind of corporate bodies—The Priestly, Legal, and Medical minds—The disintegrated yet corporate minds—The Military and Naval minds—Wholesome effects of competition on the minds of the trading and manufacturing classes—The mind of the pestiferous classes—The influence of physical exertion on the mind—Influence of age and education—Mental cultivation—Evil consequences if neglected—Physical phenomena of INSANITY—Mind and matter, their mutual relations—Causes of mental excitement in different classes—IDIOCY—Nervous affections—Nerve-actions, their cause and effects—*Nerves the telegraphic wires of the human system*—Delirium in fevers—General remarks.

IT is the possession of nerves which distinguishes animals from vegetables and all inorganic substances. The lowest condition of organic life in animals has been found to possess a nervous centre; and the very act of locomotion depends on the possession of a power given through nerves. There are two distinct classes of nerves; one set being for *motion*, the other for *sensation*. The former are under the direction of a simple mechanical law, and yet are influenced by those of sensation, wherein lies instinct, so that they are under the will of the being, and yet can be so regulated as to act in the absence thereof. The power of feeling given to the animal by the nerves of sensation is exactly proportioned to the size of these nervous filaments, and they appreciate accordingly. Some of these nerves appear so small, that they can convey but very little sensation, being apparently given to regulate the instinct of motion.

A poet's imagination would direct him to say, "That the poor worm which we tread on feels as much in corporeal sufferance as when a giant dies"—which is truly very fine language, but no more. Some such reasoning must have directed our legislature to pass an Act of Parliament that fishermen should not peg lobsters' claws, because their feelings might thereby be hurt. There is certainly quite as much sense in this as there is feeling in the lobsters, which is very little indeed;—so at the risk of now and then a good pinch of the fingers or hands, which could feel, and that too very acutely, lobsters' claws are tied. What a pity that the act did not go further, and prohibit their being boiled alive, because they squeak pretty loudly during the operation; or that it did not extend to the prevention of eels being skinned alive, or cods being crimped before they were dead! Yet, for the satisfaction of very sensitive minds, I may tell them that the feelings or sufferings from any of these processes are almost inappreciable, owing to the very small development of the sensorium, or true seat of feeling.

Ascending the scale to a higher state of nervous development—as in birds or animals—and yet ever viewing it by gradation, true sensitiveness, as compared with that of man, is fortunately inconsiderable; and taking the horse as one of the highest examples of animal life, below man, as regards the possession of feeling,—he would never be able to endure what he does in the hunt, or the race, when harnessed to the cart, the omnibus, or in any situation where we urge him by the admonition of the whip or spur, if his acuteness of feeling at all approached that of man. The horse, however, soon forgets the effect of the spur; his sides soon heal from the punctured wounds, and he can stand this treatment day after day all the year round;—whereas, if a man were to have but one pretty hard dig of the spur in his side, weeks would elapse ere he could get over it.

Nevertheless, this is no excuse for cruelty. It is simply a wise law;—and when animals are made subservient to man's use, more labour should not be exacted from them than they are capable of performing; while, on the other hand, it is false philanthropy not to make them do what we want, just as it would be to refrain from shooting birds, or taking fish with hooks, for fear of hurting them. The gentle Izaac Walton always directed the handling of the worm "as if you loved him," and then the putting of your hook through him, to catch a poor little fish by the mouth! So much then for feeling in animals below man.

With respect to INSTINCT, that power also is allotted in proportion to the amount of feeling, going always by gradation. Thus, in the very lowest animals, only one or two instinctive actions can be traced—whereas, on ascending the scale to a higher state of development, we find also a greater number of characteristic instincts. In the higher animals, indeed, we are often to the last degree astonished at the perfection to which their senses and instincts have attained; as, for instance, in the elephant and the dog, with respect to which it would puzzle us to determine where instinct ends and reason begins; and even with regard to some human beings, it would not be very easy to decide whether they act in obedience to reason, or only follow the dictates of a higher sort of instinct.

In what follows, however, we shall view and treat the subject on the assumption that instinct alone is given to the lower animals, while reason is confined to man. His nerves of motion acted on by his will, govern all his movements, whilst his nerves of feeling appreciate any bodily injury, whether from wounds or pain. He possesses, also, a higher attribute not shared by any other animal,—the appreciation of pain of a mental character arising from malevolent acts of his fellow men. As the nervous centres are developed into a larger mass called BRAIN, so this also appreciates in like proportion; and hence is it that arise the various pleasurable impressions from kindness, affection, or joy, as well also as those derived from the appreciating powers conveyed to him through the more distinct actions of seeing, hearing, touch, smelling, and taste, which are only, as it were, the *aides-de-camp* to the higher senses of reason and instinct, all bearing a relation to powers of the latter. These are all capable of the highest cultivation and training.

We must still ascend the scale in search of a yet higher attribute; for, whereas all these act on man by and through external agencies,—yet what makes him the exalted and variously-charactered being he is, arises from and out of the material essences of his nervous matter and is generated by it, furnishing the springs or motives for all his actions, thoughts, emotions, views, ideas, susceptibilities, and capacity, which make him either an ordinary, plodding, careful, every-day sort of man;—or calculating, reflective, appreciating, learned, or scientific.

Every mind has as much its peculiar bias and difference, as the body has its peculiar form, figure, and features in each individual, producing an inconceivable variety of minds and characters. Its baser properties are shown in being captious, cross, sullen, morose, uncharitable, unkind, unrelenting, cruel, unforgiving, hasty, irascible, passionate; while the kinder ones consist in being gentle, loving, affectionate, sympathising, compassionate, sanguine, merciful, and devout. As good and bad features blend together in individuals, so these properties of mind form character; still in the same mind and person the most contrary and opposite passions and sentiments may co-exist, and the good feelings just enumerated may be united with morbid sensations of perplexity, fear, apprehension, dread, doubts, anxiety, confusion, terror, incredulity, avarice, distrust, suspicion, and general disorder.

A well poised, well balanced mind, may, generally speaking, be considered a healthy one; though, under certain prevailing actions, it may become peculiar, irregular, eccentric, delusive, and vitiated. Yet in all these qualities we find gradation and law. Influences arise from every conceivable source:—the state of the moving powers and general condition of the system, the force and intensity of the chemical and vital actions of the blood; the diet, the air, the effects of medicine, also, all combine their modifying powers; for here mind and matter, and that, also, which matter produces, are fully engaged in the result, and will produce a variety of nervous symptoms and effects that are more or less clearly and purely developed. What are whims, fancies, faddles, caprices, imaginations, idle schemes, humours, oddities, phantasms, singularities, and peculiarities, but the first steps to lower conditions of mental depravation, always more or less advancing to positive delusion and imbecility?

There is a certain class of mind that is highly reflective and imaginative, that builds its castles in the air, and in such mental speculations invents or discovers something which no previous mind had hitherto unfolded. This is the inquiring and mechanical mind. When once any principle is developed, inferior minds are not wanted to follow in the race, who but an hour before (for so we must measure the comparative shortness of time) had been the most rabid opponents of what in the barrenness of their own thoughts they had condemned as absurd, visionary, and impracticable. How nobly does that mind shine out, that can undauntedly stand against the jeers of ignorance and brave all petty persecutions! There is a quality given it by nature, inseparable from the greater gift; for what Nature gives she protects:—and as she never fails to do this in her material substances, neither does she fail in her immaterial essences. She, therefore, supports this latter gift with the attribute of moral courage.

To the speculative mind of genius, the world owes most of its advance and progress. Genius is the highest state which the human mind can reach—and seems nothing short of unstudied inspiration, evincing itself, apparently without the aid of learning, a master of all or many subjects;—in fact, the very spirit of intuition requiring no schooling, and which no schooling can give. The character of genius is separate and distinct from any other. It is bound by no limit, and knows no law; the poles are too narrow to meet its expansiveness; the heavens are too low a ceiling for its height; and the whole world is too small for it to breathe in.

To thwart genius, checks its growth; to deal with it as a mortal element, dulls it; to treat it as any other but an inspiration, causes it to sicken and die. Its birthplace is the eyrie of imagination, and it lives in its own visions, its own airy castles, by the essences of its own thoughts. Its domains are so vast, that to furnish all the attributes necessary to its existence it is compelled to make its own philosophy, and its inventions and contrivances are both infinite and boundless. It is all law and harmony itself, and is continually creating, arranging, and ordering. It neither doubts nor discredits anything, but makes use of everything to elicit matter for thought, and out of the meanest and most meagre materials can weave, and manufacture, and build the most wisely-contrived and gloriously-beautiful superstructure.

Oh! how rare is such a gift; and to what dangerous altitudes does it climb on cobweb ladders! It treads the dizzy heights, and moves along the steep precipices and untrodden paths of science. Firm as a giant, it hews and cuts its way through forests of impediments as easily as the lightning's flash, and makes a highway for itself smooth and unerring as an electric wire. It knows no difficulties; for it finds none. It mounts the heavens, fathoms the ocean, and moves along the earth; it is indefatigable and untiring:—to sum up all, it is GENIUS! extraordinary gift! Yet how often is it dangerous; for any defect, however slight, turns all these wonderfully high-wrought and almost superhuman faculties and perceptions into a pitiable monomania.

There is another attribute of the mind, not so much a gift, as to be acquired; and that is PRESCIENCE, to which no mind can attain, unless it be always fixed; always on the stretch, for ever thinking on results and measuring effects; grasping events and weighing the future in the finest scales of thought. It should never for a moment cease from its wondrous exertions, its daily thought and nightly dream, should never relax from its functions as the unceasing monitor that warns, plans, anticipates, foresees. Where can we seek an illustration? Nelson had it; his prescience led him to chase the French fleet round the world and save our West Indian colonies; it led him to reduce his fleet, in order to tempt his opponent to come out and count them; and he knew that the disguised figure in the little caïque, skimming the water and going round him, was

Villeneuve, whom he anticipated and watched for, giving orders that he was not to be molested. "Here he is," said our gallant admiral; "now he'll count our force and come out." Prescience had kept his ships at signal-distance; prescience called them in; and history has recorded the results. Wellington had it too; he won his fame by it; his prescience knew his adversary's next move as well as the latter himself. Napier had it; Clive had it; and thousands of inferior men have it, whose minds are fixed on results. Statesmen now of days, however, seem never to have it, at least not in this country. This it is, which is called a head.

Where is Prescience now? Where was it, after Pitt died? What was the complaint of our commanders? That there was no head, no prescience at home. Yet against all drawbacks and want of support *their* prescience triumphed. Where was prescience shown when Napoleon Bonaparte went to Elba; things being so inconsiderately arranged, that the very army which had gone through so much, and achieved such deeds of valour, driving three *French corps d'armée* from the banks of the Tagus right across the Pyrenees—which, in short, as Wellington himself said, "could go anywhere and do anything," was dispersed all over the world or else disbanded; so that when England found herself again suddenly called to arms, the fate of Europe depended on Waterloo and raw levies?

Again, was there not the same want of prescience in the Crimea, which furnishes so dark a passage in the history of incompetence? Once more, where was it when the troops returned, the Treaty of Paris *unsettled*, and accidents alone preventing another outbreak? England had paid dearly for her soldiers, and might have been gratified with a larger sight of them. At all events, the cloud had not passed away. Where was the head, where the prescience? Here would have been an army all standing ready for India; and yet there was not one statesman found bold enough to turn the tide against the prevailing mania for a hasty and bold retrenchment. The fiery cross was flying, in the shape of small cakes, throughout India. Was there none to understand these signs?

Prescience, then, next to Genius, is so exalted an emanation of the soul, that, more than arms or arts, it should in all minds concerned in state affairs be rather the rule than an exception. Nay, if in private life even, in the great struggles of a mercantile community, it had no existence, we should not now see our manufacturers and merchants, our country, or the Anglo-Saxon race, what they are. This furnishes, indeed, the great means throughout the land for the success we see; and yet, where we want it most, how often have we to lament its absence!

Which, then, are the classes that think? The answer is obvious:—those who have to live by thought. No one knows where originality or new ideas spring; and each man thoroughly believes he utters his own conceptions, when he is only improving an occasion, by touching on a popular chord. Statesmen do not originate; they have enough to do to follow, and do nothing except from the pressure from without; and what they do or have done of late years has been but very imperfect, even with the matter supplied to them. The master mind—the prescient mind—has ceased to exist. The aristocracy do not originate; there seems no necessity for it, when it can be done for them; their weight in the scale is all that can be expected of them, supplying as it were the heavy artillery or siege-train, without which the Troy of usage would for ever stand; though this is always demanded of them, and yet too frequently with difficulty elicited.

Taking the Peers as a corporate body, nothing new or original is ever obtained by their corporate combination. Take the lower House of Commons,—the simple mouthpiece of the popular voice,—what is there worth recording in the debates of six hundred and sixty men, whose minds are warped by party-feeling, political principles, personalities and private opinions, place and power,—a slavish following, either of their leader or of popular prejudices, or a patient submission for personal purposes? True patriotic feeling and sound logical argument are ignored. That specious oratory, sagacity and ready wit to seize an advantage or turn the flank of an adversary's position, may exhibit a sort of mental duelling of no common character; but certainly neither genius nor prescience has any existence there.

The corporate mind of the Clergy is shut out from thought; their very education is the forging of iron bands to limit the brain's influence on originalities and new ideas. Pedantic and orthodox, they are led by classical study to judge only of what has been; and their theology admits of nothing but a stern despotism of mind to keep it in the bounds which they dare not transgress. Minds warped alike by predisposition and received authority, to which they cling with pertinacious grasp, admit of no expansion in themselves; nor will they consent to tolerate it in others. The great elements, however, which are thence alone gained, are transmitted in their seed; for to their offspring engaged in secular employments is often accorded a vigour of no ordinary standard; inasmuch as they take the best part of their parents' intellectual and highly-cultivated ability, without the accompanying alloy. As respects this fact, biography bears me out by recording the noble intellects, minds, and characters that spring from this source.

This blessing, peculiar to countries possessing Protestantism, stands out in strong contrast to the evils entailed by the forced celibacy of the clergy in the Church of Rome. Indeed, I have ever thought that Roman Catholic countries have lost the beneficial influence of the good seed transmitted through the legitimate offspring of cultivated minds; and have thus, by abjuring natural laws and divine institutions, brought on themselves the curse which their own disobedience merits. In fact, the celibacy of the clergy and the system of monkery have together checked the growth or expansion of the national intellect in all Catholic countries, as well also as restricted the population, by forbidding large masses from adding their quota to the increase.

It may be set down, then, as a rule, that the prevailing corporate mind of the Priesthood, to whatever creed or denomination they belong, has been, from time immemorial, despotic, arbitrary, and circumscribed. Its love of power, too, has been so strong, untiring, and intolerant, that its history in all ages, even down to the present day, shows, that unless a wholesome check were placed upon its authority by the educated laity, the world would soon return to the night of mediæval barbarism. Oh! what a thought is this for kings and emperors! When the crosier once rules the sceptre, the power of the latter can only be restored by seas of blood; and I have no hesitation in saying, that, however despotic a sovereign prince may be, he will always be found more charitable, merciful, and humane, than a mitred or tiarad priest, who, when once in power, knows neither charity, nor mercy, nor humanity.

The LEGAL MIND, in its corporate capacity, is cramped and formal, plausible and specious, having little or nothing that is ennobling or exalted, being in most cases devoted rather to quibbling and special pleading than to fair argument and sound moral logic. I would not refuse all due praise and admiration to many master-minds and legal luminaries who have done honour to that profession; but I mean to affirm that the law is, to say the least, obscurely expressed and its interpretation more so; in consequence of which, it has been the province of legal cunning, rather than high professional learning, to take cases of doubtful issue. Law, in fact, like the equity of our courts, is not always justice; and in both cases the results are most uncertain. Who would not be positively bewildered by the contradictions and absurdities of the statutes at large, with which even our most learned lawyers are puzzled? And yet, withal, how necessary is law in a highly-civilised country like ours, where property must be strictly protected, and without which no man and no man's goods would be safe!

The criminal law, again, is the Ægis of the well-doer, the Nemesis of the transgressor; and yet how often do we find the innocent condemned and the guilty go free! In short, it is to the want of a fixed meaning and interpretation chiefly, that we must ascribe its principal errors and obscurities. Hence it is, that men brought up in its study and devoting their lives to its general interpretation, get their minds so warped, that they become almost the last persons who should be consulted for its reformation. Too many lawyers engaged in making laws spoil common sense or else exclude it—which always opens the door to the development of chicanery—an element unfortunately so general in the legal mind, that philosophic reasoning is the exception, not the rule.

The Medical Mind, in its corporate capacity, is especially the slave of received authority. Its mandates are venerated and obeyed with a corresponding ardour. It follows a blind routine, as if it were a divine institution not to be questioned; and what custom, habit, and usage have sanctioned, becomes fixed, and is pursued without inquiry. The very rules of the schools tend to check originality of thought; for although they may insure a certain amount of knowledge, yet in such quarters the most absurd dogmas are too frequently set forth and upheld on the reputation of certain names, as if the book of Nature were to be read only by the light of a few dim lanterns. Speaking only of the treatment of disease, candidates for admission into the medical body must answer according to the caprices or capacities of their examiners, and what the latter have fixed as the law and rule to be observed.

Early training in the circle of given principles impoverishes thought, and leads only to a blind obedience to certain dogmas which we know to be as often wrong as right. The best method to be pursued is considered to be that which some person has found useful in certain cases, yet not always to be depended on. Nevertheless, it passes muster, because a better system has not yet been proposed. A full acquaintance with a varied treatment shows a spirit of inquiry which becomes admissible if supported by any authority, however opposite its decision may be to the received formula; for opinion, not philosophy, is the guide. The only wonder is that the medical mind knows so much, not that it knows so little—not that medicine does so much good, but that it does no more—not that it is so uncertain, but that it has any certainty at all.

Considering the amount of thought brought to bear on the treatment of disease, it may appear extraordinary that the largest experience in the widest fields produces no greater results. Every age sees its professors gradually gathered to their fathers, leaving nothing behind them as a proof to a future generation that they had ever existed at all. Honoured and esteemed in their day, they die and leave no sign. It is not then in the excess or magnitude of the field worked on, that observation or originality exists. Observation in a far smaller area may produce far greater results.

Professors without genius, are only teachers of already admitted dogmas—the personification of what is known, rather than leaders of new trains of thought. They, therefore, more frequently obstruct than advance; fix, more than progress; nor does it always follow that when they alter, they improve. Now, this wholly arises from a false philosophy, or the want of any at all. No good thing, no new idea, no great fact, ever springs from the combined authority or wisdom of corporate minds; for difference of opinion destroys the vitality of any germ. A corporate body may sanction and enforce by the weight of its authority; but it is from single minds alone, that discoveries spring; and the less a mind is warped by authority, the more likely will it be to invent, discover, and beget originality. The mind, indeed, once enslaved, becomes for ever prejudiced.

The MILITARY MIND, in its corporate capacity, is a machine. During peace, the care and discipline of given bodies of men are alone its occupation. A few movements, as in mimic war, are the only lessons that can be studied; whereas war itself, on the other hand, is a very different affair, that at once rudely upsets all their precision, and compels attention to a thousand things that had never been arranged before. The mind has now to be developed for the first time; and how few out of the many are there who can suddenly display judgment and foresight! Accident places the most unfit in command, and they are found wanting in the hour of need; though at the same time, none dare rectify errors or remonstrate against abuses.

To allege that there is not the military element in the lower ranks of officers, would be unjustly to asperse their ability; but the latter, unfortunately, have only to obey, and often do so against their better judgment. War alone can make commanders, and a great captain cannot jump into renown; the war must last long enough to educate him; and if he has not learnt his art before, he has to learn it then. Here, then, is the fault, or rather the wickedness of our rulers, in setting old men to learn their profession. The full prime of life and vigour is the only epoch of life for this stern calling. Where it has been learnt, and only thrown aside for lack of opportunity, it can be resumed, if the mind, at least, has the natural turn and bent; but no long time should ever elapse between inaction and positive fierce combat. Both body and mind rust, like the undrawn sword in the scabbard. Peace may make well-trained soldiers; but war makes the officer, and more particularly the general. The young general, too, soon learns, and one discomfiture makes him. He becomes abashed thereby; and instantly all the fiery thoughts of his whole soul rouse him, and make him from that moment a totally different man.

The corporate mind of an army is obedient to one alone; all take their cue from that. Should it be discriminating, bold, quick, and prescient,—well and good; one mind like that begets similar attributes in others that are ruled thereby; and these, when called on in the battle-field or deadly breach, will add many a laurel to the chaplet of the victorious leader. Were such a leading mind on the other hand effete, used-up, and past work, with no soul in the cause, it is clear that no glory could arise from the bravest acts either of officers or men, as want of judgment in their superior crushes all. More than one battlefield in the Crimean campaign bears painful evidence to the truth of this. Yet, all this granted, opportunities are never wanting for personal and individual distinction. The first Napoleon, true genius of war, well knew this, acted on its suggestions, made his men officers, his officers generals, his generals marshals, even on the very field of battle (just as our knights-banneret were made by the Plantagenets); and out of these he formed his brilliant military staff.

The corporate mind in the NAVAL SERVICE is more diffused, and acts either singly or conjointly. It is seldom or never at fault, if left to its own discretion, but singularly so when cramped by ministerial instructions. The sailor's mind, in fact, is always one of action, following quick on thought. His ship, and even his own life, are constantly dependent on it; his judgment is mostly clear and prompt; and hence his instructions should always be explicit, his orders to act *carte-blanche.*

See what has been accomplished in the disintegrated corporate mind of our Mercantile Marine, both as regards the ships and their commanders. Thus, then, in all corporate bodies the mind is more or less fettered, and cannot move out of a certain groove. They admit new elements but sparingly—never willingly. These must be positively forced on them, yet when once admitted become a rule; and, strange to say, the chances are equal, whether they are wrong or right. There is equal difficulty, in fact, in excluding what has been once admitted—so cautious are these bodies of exhibiting any vacillation, any leaning towards a change, even a beneficial one.

As a general principle, where no corporate influence exists, as in disintegrated bodies of MEN ENGAGED IN TRADE, advance is certain; because opposition and emulation constantly goad them on. It is in these, that the greatest and finest elements of the human mind exist. It is usual, now-of-days, we are aware, to give precedence and preference to what are called *the professions;* because they require classical learning and a higher degree of education, besides involving more public responsibility. It does not necessarily follow, however, that these higher callings in life require a higher class of mind: for the fact is, that the highest and most useful minds have, generally speaking, received only a very moderate education to assist their natural development. Here, bound by no abstruse laws, checked by no starched formularies, curbed by no martinet authorities, circumscribed by no absurd rules, it dashes onward and expands. The natural efforts of the reflective organs acquire a keen knowledge and understanding of a thousand varieties of matter and thought, and a healthy vigour possesses it.

Unjust remarks have recently been made on the employment of men in retail warehouses for textile fabrics; and it has been alleged, that women might equally well fill their places. Not so! These shopmen, little as may be thought of them, are the germs of our merchants and manufacturers; and it is on these, that our greatness as a nation depends. Pater-familias may send his other children into the clerical, legal, medical, military, or naval professions; but the shrewdest he has, the sharpest, clearest-headed, and most sensible, must be selected for the future merchant, as the others would stand no chance in so busy and anxious a field of action. The business of this great country, I repeat, is not conducted by the minds that are engaged in the professions. Sad would it be for England, if it were. Professional minds are schooled minds, and are the recipients and retailers of everything that is known. Do I despise or deride their learning or their talents? Far from it. They are full men, having minds bursting with knowledge; but it is not this class of mind that advances the world.

The next great class of minds, corporate though disintegrated, is that of MECHANICAL MEN. They are called into existence by those just described, who are constantly urging them to increased exertion. Nations wanted neither railroads nor electric telegraphs for professional purposes or those of simple pleasure; for all the latter combined would not pay the interest of a single line. It is evident, therefore, that minds like these must be of inestimable value to every commercial community.

All other classes of minds flow in the great river of life,—those more developed choosing the broadest part, those less so following the gradually narrowing channel, till it becomes a mere streamlet, though still flowing. The last, the lowest of all, are those which are stagnant, and make the human mind a mere swamp. These are the malarious and pestiferous portions of society; and yet how sadly and unphilosophically are they managed! Here, indeed, civilisation and prescience stand accused. As in the treatment of the body no part of medical practice stands so high as the preventive, so here no branch of our criminal jurisprudence ranks so high as that which would prevent instead of punishing crime. Both, however, are but little understood; though there is a growing belief in their necessity. With respect, however, to the sub-draining of these social swamps, and the filtering and purifying of this vast human mass, minds in all the integrity of reason judge of the morally diseased as they would do respecting the erring who are on the same standard as themselves, whereas they should be treated simply as a superior order of brutes,—brutes, as only having the smallest appreciable amount of human reason added to the utmost cunning and crafty instinct.

The best trainers of the animals below man are those who best study their instincts. Animals have no power to dissemble their intentions. If you watch them narrowly, and observe them closely, you can see how their instincts are developing their movements and intentions; and if you do not know these, you are deceived and suffer therefrom. So is it, also, with the human-brute class. If you do not study their instinct and low cunning, and cannot fathom their intentions by reading their very souls, they will deceive you; and here is the reason why your philanthropists, your well-intentioned moralists, your theorists on prison-discipline, your zealous and impressive evangelists, utterly fail in reclaiming criminals,—simply because they are deceived. In confining and caging this brute class, these mistaken persons only encourage deception; and the cunning and sheer dissimulation of their patients become at last complete. Who are to blame? I always will maintain, that if disease is curable and is not cured, it is the physician's want of judgment and knowledge. So is it, also, with the mental physician, especially as regards these classes; and if benefit does not arise nor plans prosper, there is evidently a want of judgment and knowledge.

The mind, then, in its corporate acts, as it affects the masses, must be read by its influences on the community at large. As respects the power and vigour of the mind individually, we must trace it through its development. The greatest nervous power of the body, combined with thought and design, may be said to exist between the ages of twenty-five and sixty. It may begin earlier and end earlier, come later and remain later, or be late in its development and leave early. In persons under twenty-five years of age, we often see a high physical nervous development; but seldom till after that time is it combined with thought and discretion, or properly directed. Thus, we look for all its vigour, thought, rule, struggles, and advancement in society, to be accomplished by those between twenty-five and sixty years of age. From fifty to sixty great vigour may exist, where mind alone is required; but when physical endurance is to be combined with superior mental requisites, as in the admiral or general, we need expect but little after fifty, except in rare instances. At that time the body wants plenty of rest and food during the twenty-four hours. A general in the field should require very little of either,—in fact, no more of either than he can get while in the saddle. The young general knows everything from his own personal observation, and acts vigorously thereon; while the old one acts only on the reports that are brought to him by others.

Man cannot contravene the laws of matter with impunity; for if he does, he meets with disappointments and brings disasters on others. The mind from fifty-five to sixty-five is often very vigorous, and may be employed with the greatest advantage in the Senate, at the Bar, or in the closet; but when coupled with great physical exertion, it is dulled, because opposite forces are at work in the body. Those which should support the mind, are absorbed by the physical powers; whereas, if the latter are not exercised, these forces then add their support to the mind. In youth or lusty manhood, when the mind and body are both alike severely taxed, the physical powers scarcely know fatigue; and not until the mind ceases to think, are they at all aware of any feeling of exhaustion. As regards the admiral, however, he has a better chance for the display of mind and for useful employment after a given age, because there is not the same demand on his physical powers as there is with the general, who ought, perhaps, to be the whole day in the saddle, and trust to no observation but his own, when he probably cannot stand for more than a few hours.

In all the affairs of life the greatest vigour of mind is required. EDUCATION exercises a most powerful influence, also, in guiding it into right channels; but this is unhappily too often most faultily conducted. The peculiarities of youthful minds are not sufficiently understood by those who have the training of them. Some boys can only learn or receive intelligence by reading, others by hearing alone, through which they receive the deepest impressions of knowledge; and some can never commit anything to memory, while others, on the contrary, can learn page upon page, and repeat it fluently. Now to place two minds so opposite in the same class is highly improper and absurd; for the task which is easy to the one is most difficult to the other, and the one will be deemed clever, the other stupid. This, however, is by no means a fair mode of deciding on the true character of the two minds. In fact, the comparative value of them is never correctly determined, except in after-life. The minds and characters of men are formed after they have left school, when they begin to make their own observations, and see the necessity of doing so, when urged thereto by their business and employments.

Education, I maintain, should always be made interesting to youth; learning should never be made a task. The pedant or pedagogue always makes it so, and leaves uninitiated minds to find out as best they can what is abstruse and occult; whereas the true principle of training minds and communicating knowledge is, for the instructor to do the labour and give the instructed pleasure and delight in receiving it. The plan hitherto has mostly been to propose riddles and puzzles to children, and punish them for not finding them out. Now how easy would it be for a teacher to put a good translation of a classical work into the learner's hand, explain the author's general meaning—next dilate on his ideas, and the language in which they are conveyed, then demand a literal translation from the original, with special attention to the idioms, and lastly descend to an analysis of the grammatical forms and construction, comparing also the words that other writers might use to express similar ideas. There would then be no excuse for not acquiring a competent knowledge of the dead languages, and getting at the wisdom of bygone ages.

In studying the classics particularly, more ground would be got over, as well as more rapidly, and the youthful mind would be at the same time more substantially informed, if it could only be more interested; for if it only once be fairly interested, then a task becomes a pleasure. They are now taught, however, if I may so express it, by the wrong end first. The rudiments forming the base must of course take precedence, just as we learn the alphabet first, then put letters together to form words, and lastly arrange them in grammatical order; and when that has been done, let the old plan be reversed. Let the same, in fact, be done as in singing and music. The master first sings the notes and passages, then plays the tune to show its pathos or feeling; all of which the ear catches, and the voice and fingers follow, partly mechanically, partly mentally; whereas, on the other hand, if this be not done, the novice or tyro, however well acquainted with the value of crotchets, quavers, semiquavers, rests, bars, &c., will never be able to make a correct reading of it, or enter into the spirit and feeling of the music, whether a song or a piece, though it be all before him.

According to the present mode, mathematics and arithmetic, geography, history, and everything else forming the subjects of scholastic study, are really not taught at all, but rather left for the pupils to find out and elicit for themselves; and the consequence is, that all such studies are dry, dull, stale, and uninteresting. In fact, teaching is positively a misnomer; it should rather be called the slave-driving of the mind. The pupils have to work hard to teach themselves, while the misnamed teacher contents himself with applauding, correcting, or punishing. Now, so far from this, the instructor should be an instructor in every sense of the word. All classes of minds would then have some chance; whereas, at present, he that can learn by the ear alone, gets but moderate information, and he who can better learn through the eye, may have his mind first instructed by his books; while, on the other hand, he that cannot learn by the eye (and there are many who cannot), may for ever remain a dunce, or at least uninformed, because he has never had any real instructor through his most appreciating sense. He that learns by his ear can retain and remember with equal facility what another can acquire only through the eye, the latter having a double chance of acquiring knowledge. Still Nature, ever fond of equalising her gifts, gives greater aptitude of apprehension to the former; the mind of the listener or hearer being frequently the quicker of the two. We see the same constantly in the world of men; he that is obliged to study for his knowledge being often not better informed generally than he who is constantly picking up knowledge by the wayside, and from every source that comes within his reach.

Nothing has so much shown the faulty character of our modern education as the late movement in instituting examinations for Government-appointments. The evil has arisen from the simple fact of the candidates having had to instruct themselves; and we see how they have done it. It were perfectly ridiculous, indeed, to suppose that they had ever been instructed. Their ears and their compelled attention to the teaching, the information, the knowledge conveyed to them by their masters, would, if the latter had really taught them as they should have done, have made them better informed than they were, even had they never read a book.

Whatever profession or calling a man has, he should always cultivate a pursuit independent of it, as a healthy set-off. Variety of subjects furnishes increased food for the mind, and keeps it healthy, precisely as a varied diet does good service to the body. They expand it and keep it vigorous. A contracted mind is always sceptical, and rejects the greatest truths, if they happen to be new, however much they may have been elaborated by deep observation, thought, and induction. Every one takes credit to himself for knowing an admitted fact; but, until any really new one is admitted by the world, it is deemed a chimera, the mental dream of a visionary. Let time, however, but ripen this little seed, and the repudiated novelty is then received without apology.

In these times of intellectual progress there is no more dangerous doctrine on which a man on entering life can wreck his mind, than the hasty repudiation or condemnation of new matter. Hundreds are now living,—and in the two last centuries there were as many more,—who have lived to lament their ridiculous opposition to new ideas that have afterwards proved to be great and world-valued truths. Some of these have held high rank, high position, and commanded universal esteem; but yet their names, station, and opposition have sunk into oblivion, which has kindly screened them from ridicule. Of one thing, at all events, we may be well assured, that any man who introduces new matter to the world has thought of it, and laboured at it much more than people could have imagined.

How then can any one who has not studied his subject be presumed competent to judge or condemn?

The more varied are a man's studies, I maintain, then, the more expanded is his mind. Contraction of ideas begets contraction of mind; and many are the phases of character that it assumes. He that cultivates nothing beyond the limits of his vocation, becomes a grubber, and all his labour has but one end—acquisitiveness. In short, he lives but to amass what he has no mind to enjoy. It is one of the lowest conditions of life, when this propensity, combined with a certain vigour, once possesses the mind of a man; for all his thoughts, actions, and movements are stealthily engaged in the process of accumulation, and he ends by denying himself even common necessaries—nay, sometimes works himself up into the idea of suffering penury, and starving himself to death, for very fear that he should die of want. Can you not here see the miser, and recognise cause and effect? The phases of this character are numerous; and they all are plodders and workers for very limited objects.

How necessary, then, is it always to keep the mind expanded, and in a healthy condition, by variety of occupation and study! Single objects, single pursuits, single thoughts of a predominant or impressive character are to be avoided. The harping of the mind always on one string tends to delusion. If it has vigour to pursue an idea or purpose for any length of time, nothing else can give it so much pleasure; for that is the point to which it is always recurring. If the excitement continues, and no actual neglect of other necessary matters and duties occurs, a certain degree of sanity is maintained. Nevertheless, the evil is progressive, and may suddenly end in inflammation of the brain, which may, or may not, be permanent; for recollect, you are drawing largely on material powers.

Thoughts, let me observe, must be nourished by blood; and blood is the life,—which material and maintaining power must be always largely drawn upon. Long and continued thoughts on one subject may result in engorgement of one part; and overcharged vessels, however minute, may suddenly burst. There is no outlet for these in the brain, as there is in sudden rupture of engorged vessels in the stomach, lungs, or elsewhere; and hence, when they occur in the brain, they soon terminate in death. Single actions and single subjects may become chronic in the system, and lead the mind to one or other species of monomania. All these actions go by gradation, and obey certain laws. The mind, in fact, deceives itself, and through being in constant error, becomes the subject of permanent delusion.

The monomaniac fancies himself another person, sometimes many persons by turns, or imagines himself possessed of property, titles, &c.—or, on the other hand, he descends the scale, and imagines himself to be an animal, or several animals, and imitates all their voices by turn. He sometimes even believes himself to be an artificial material—as for instance that he is a pump, and must be used as one; nor, unless an attendant moves one of his arms up and down pretty vigorously for a short time, will the delusion subside. Again, a patient may fancy himself a vessel of the finest porcelain or china, that must not be too rudely approached for fear of being broken. Delusions, too, sometimes seize these unhappy sufferers of having live-animals within their bodies, which they suppose they have swallowed, and which continue there to annoy and vex them. One of this unfortunate class lived opposite a cobbler's stall; and his great amusement and occupation was to see Crispin work. The humble artist, however, moved his quarters; and the monomaniac became possessed with an idea that he had actually swallowed him, stall, lapstone, hammer, wax, nails, and *awl*. It made him frantic; but that delusion was reduced by the simple measure of giving the poor man emetics, which in their action, he was made to believe, threw up the various implements of shoe-mending into the vessel, till at last all were got rid of, except the cobbler himself, whose whistle was distinctly heard, and his movements distinctly felt. At last the mender of damaged soles was bribed to play his part, and when supposed to have been rejected in the same way, was very summarily kicked out of the room. This case of monomania, however, was only relieved by the insanity putting on a new phase equally delusive, morbid, and absurd.

We are very apt to measure the diseased condition of mind in a fellow-creature by our own, which is perfectly healthy. We feel for him; we think what he must suffer; we grieve for him. Now this is false, and our philosophy is at fault—the simple fact being, that *we* have reason, *he* has none, because he has lost it, not only as a thinking animal, but an appreciating one as well. He may shrink from a blow or any corporal punishment, though he does so only as a brute animal, the sensation being only temporary. He may suffer in like manner from wounds or bodily pains; but they do not impinge on his mind. He may be informed, even in his lucid moments, of things that with his reason unimpaired would give him great pain; but they are received without the least appreciation. Neither for himself, indeed, nor for others can he feel or sympathise. He has no anxiety, trouble, nor care, and no longer feels any interest in the world or its pursuits—because he has lost the gift of reason. He may seem to talk rationally at given times; but this is more the mechanical action of a lower animal endowed with speech. Reflection has not guided the words, nor has reason dictated them. In a word, reason has been dethroned, and the mind is a nonentity.

Now, the flight of reason from them may result from many causes;—as, for instance, a blow on the head may suddenly deprive a healthy man of his senses; and if his mind be destroyed, and he lives, he lives only as a mere animal machine;—for his powers of nervous appreciation have become so deadened, that though he may suffer the pains of disease, pains from wounds, pains from operations, or pains from cruel inflictions, they are as temporary as the spur to the horse's side. They dwell not in his mind or his reason, because these have no existence. Should this condition continue for a number of years, and much apparent suffering have existed to our more sane knowledge, and should he recover his reason, and any questions be asked him on any point of his sufferings during the suspension of this mental attribute,—he would deny all knowledge of his ailments, though his scars might be shown him, or any other indications of what his body had undergone. A man in the delirium caused by fever or pain, when restored to consciousness, knows nothing of it, and when told of it will smile and say, "Well, I knew nothing about it." The one is a short, active aberration,—the other a long-continued, chronic one. The mind, even in its sane and reasoning condition, is apt enough to judge falsely, and give to that which has no existence the same attributes as to actually existing things; and this being the case, why need we wonder at this being done to a yet greater extent, when reason has left her seat and the mind become a void?

Lunacy, in its complete state of mental deprivation or alienation, and Idiocy, or mental imbecility, are comparatively happy mortal conditions to the individual sufferers, and constitute the animal *out of his mind*. Partial lunacy is a state much more distressing to the individual than complete lunacy, for the above reasons. If we pity, it is all we can do; but we are wrong to compare what exists with that which has no existence. A person, then, out of his mind, has none of its attributes. The simple fact is,—he is reduced to mechanical instinct, and no longer suffers from that which oppresses the mind through external impressions on the one hand, or internal emanations on the other.

The more highly the mind is cultivated, the greater are the results, as people of every class and denomination furnish us with brilliant examples of talent, irrespective of the corporate body to which they are attached. These are the persons who exalt every age and confer dignity and honour on themselves, as well as the nation to which they belong; and thus civilisation expands. Any decay of this, any contraction as regards the freedom of its development, limits the powers of the individual, and of course tells upon the nation;—for the mind is so susceptible an essence, that it is impossible to say whence it gains its first germ of thought; and if it is at all limited, the ideas that would have sprung from the unadmitted sources are shut out, as a matter of course. The perfect freedom of the Protestant Anglo-Saxon will always keep him far above all nations, and in the van of the world;—nor can I (knowing, as I do, that all men and nations must contribute to the stock of general knowledge, as well also as that great gains have been added to the store from Catholic Europe) help viewing with dismay the submission of Foreign Rulers to the Concordats of the Priesthood; nor can I doubt that a terrible retribution will one day follow that retrograde step. The same occurs in all the affairs of men wherever prescience is ignored.

The experience of nations is of greater importance than that of individuals. In the one case a few only are made to pay the penalty; while in the other all are compelled to suffer. A commercial panic happens periodically from over-speculation and scheming of a chimerical nature;—no lesson is learnt from former examples; generations of men are coming of age every day, and yet no man takes advice of experience. From time immemorial none has ever listened to the prophets; all seem bent on buying their own experience; and the same remark applies to monarchs and states as to individuals. The mind, in fact, requires to be schooled into knowledge. Some pay moderately for it, and have their narrow escapes; some suffer more severely, and others again are inextricably ruined, —all because the prophets are ever despised or unheeded.

The properly trained minds of theologians exalt us to heaven,—those of the philosophers to reason and induction—to virtue and happiness,—those of mathematicians teach us nice calculation on matters of the very highest interest,—and those of discoverers and inventors advance the world. Too many are there who have added to the dignity of their country and supplied the wants of mankind with little benefit and no reward to themselves. To him who planned the overland route to India the noblest monument might now be raised. The honour of it would far surpass any praise that can be bestowed, and that honour his skill and exertions have richly earned. The value and importance of this route in a mercantile view may now be calculated by millions; and yet he who planned it, poor man, was scarcely acknowledged.

No one knows the amount of labour that great minds bestow on any proposed object. A multitude of circumstances must combine to form the original and distinguished mind. It cannot itself rise, except from a variety of adverse elements, all of which it must surmount. Opposition must cross it, difficulties beset it; it must rise and fall, have its hopes and despairs; and as constantly as it is knocked down, will it rise phœnix-like into fresh and more vigorous existence. It struggles against adversity, battling against all manner of persecution, and every detaining action only adds to its power. Hard, however, as these trials may be, they are necessary for the mind's larger development. It takes its high position at last, and then men wonder, as at a prodigy; but none know its struggles or its troubles. Every mind has trouble; for Omnipotence has ordained it as a necessary condition of man, who could not exist without it.

Whatever is desired or asked for, must be sought by labour. No labour is without trouble, and High Beneficence brings honest labour to good effect. The richer classes have their labours and their anxieties; nay, even schemes of pleasure and self-gratification have their attendant troubles. The middle class have their troubles, and yet rise to ease and opulence. The poorer classes always have them; from their birth to their death all is toil and labour and trouble. Trouble is as salt to the mind, and necessary thereto. If real troubles do not exist, the mind manufactures them; and those which we manufacture ourselves are the hardest of all to be borne. Probe them, sift them, and see how unwarrantable and inconclusive they are. They cannot be got rid of, but impinge on, harass, and perplex the mind. Real troubles are more easily overcome; these cannot be. What an equalisation do we see here of natural gifts! The natural trouble seasons, ripens, and elevates—tends, in fact, towards health, and, as it were, brings salt enough to savour and invigorate; whereas manufactured trouble on the other hand, being always in excess, impoverishes, distempers the mind, and brings on disease, just as excess of salt brings on lowering diseases in the body.

Mind is nourished by matter, and matter has vigour imparted to it by mind;—both are inseparable. Mind and body are bound by ties, which the scrutinising eye of science cannot unravel; nor can it define how far mental influences may have caused the wasting body, or on the other hand the debilitated body produced the mind's decay. Cause, in fact, will change to effect, and effect take the place of cause in the wonderfully eccentric, chemical, and vital influences of these great phenomena. Thus, if the mind predominates over a just balance, the body sinks; and when the body is strongest, the mind may fail. Changes, various as the hues of the chameleon, occur through all phases of the human mind. Here, then, is a point which the million have not considered, have not had laid before them, have never been shown or instructed in;—I mean the evil of discord, and the constant and mutual dependence of mind and matter on each other. These have hitherto been considered subjects for science alone, confined to purely philosophic or medical minds, and even to comparatively few of the medical fraternity. These are their most abstruse subjects, furnishing the most difficult and mysterious elements for deductions and conclusions:—in a word, they are the very metaphysics of their literature.

Natural or born idiots are but few, very few in number; and bear an almost inappreciable per-centage in the great masses of human existence. The natural diseases of the brain, to which I have alluded, are very few, as compared with all others, either functional or organic. Whence, then, in the advance of civilisation, do we get so great an amount of mental delusions independent of actual malformations of the brain? Whence arise these defalcations, and where is the remedy? Sensual habits, low pursuits, gross indulgences, pernicious literature, loose company, morality contemned, virtue disregarded, devotional feelings misguided or uncultivated, and vice in all its shapes indulged to excess—these are the causes that contribute to debase and enslave that attribute, which Infinite Wisdom has given man to make him superior to all other animals. Unless the million have these things sternly, kindly, and succinctly laid before them, where are they to learn them? Who is to point out to them a state which is evidently on the increase? Their own follies and vices cause them. It is not my province to point out more than what concerns the effect of all these great matters on the body. Let them hear the views of divines on the subject and reflect on a future condition. The unhappiness and disease of our fellow-creatures, while in their present mortal state, is all that I dare to touch upon: to treat of his higher and future destinies is not my province—all left to me being their health alone, and the healthy condition of their minds and bodies.

So much then for what concerns mind alone; but there is another portion of his organisation, over which man himself, whatever his station, has no self-control; and that is the nervous system, including the power, force, and tonicity of the nerves themselves, and the influence of injuries and disease thereon. These form quite a different subject, and come partially, though not wholly, under the head of medical agencies. The higher the organisation of an animal, the higher is its nervous development. In these it attains its greatest perfection; and every one knows, that not a single part of the body is exempt from feeling. The nerves of feeling traverse everywhere, and the nerves of motion likewise, acted on by the will, influence alike the whole machine, either as a whole or a part. This structure can now be more dilated upon, and made clearer to the minds of all, since the powers of electricity and galvanism have been brought home to the general mind through the electric telegraph; though of course the latter, as a mere human discovery, can bear only a very limited comparison with nervous action.

The lines of communication in the nervous system are inextricable. The least appreciable touch is conveyed to the brain in the fraction of a second;—time and space are annihilated; the action is instantaneous; and in that act a thousand wires have conveyed the intelligence. If it be only an indication, a simple message, the station from whence it is conveyed has performed a positive act or duty. If this message be enforced by a continued pain in the part, then positive and negative actions are kept up simultaneously throughout the line,—the positive current keeping up the intelligence, while the negative conveys appreciation by a reflex action. Now it was singularly proved, during the experiments with the late great Atlantic electric telegraph wire, that when a *positive* action was made and received at the end of the wire, the next was somewhat weaker; whereas, when a *negative* current was directed back again through it, the succeeding positive action was strong. So, I apprehend, accident may in science, as well as in mere matters of fact, bring to light natural laws; and as no direct or positive action takes place in the body without the reflex or negative action immediately following it, science gains a step by the discovery.

In advancing some theory for the collapse in cholera, I have mentioned the specific duties of the ganglia, or bunches of nerves, as stations for the supply of force to the electric current. The mind must always have some basis to rest upon; and when we find union of nerves forming masses of nervous matter, we have a right to form some hypothesis for their uses; because, in doing so, we arrive at a cause or principle, why the pain of a part injured will affect also other portions of the body, irrespectively of the intelligence it has conveyed to the appreciating influences of the brain. The long-continued message of a pain, then, may be supposed to fly off from these ganglia or bunches of nerves to the several parts, whence they themselves contribute their wires, and thus we get a sympathetic action in those parts. Pain from a wound will cause sickness, or a diarrhœa. The sympathetic actions of mucous membranes are *nerve* actions, produced by irritating conditions of those membranes. Injuries to the upper extremities produce a different class of nerve-actions from injuries to the lower extremities. The former will produce lock-jaw, the latter inflammation of the external lining of the bowels, called *peritonitis;* and this sympathetic action, being continued in excess, will be followed by serous inflammation of the substance of the lungs, called *pneumonia*—both these diseases ending in death, unless almost immediately relieved.

There have hitherto been no certain means of discovering the stealthy step of these sympathetic nerve-actions; and not, until they have been so fully developed as to be recognised by even the merest tyro, are they at all suspected. Here, however, Glossology proves an unerring guide. Impactions of fœcal matter or obstructions in the bowels cause pains; and so also will gases generated in parts of the bowels, which being unable to find a vent, produce what is known as flatulence. This distends, enlarges, and stretches the portion of the intestines to which it is confined, causing excruciating suffering. No inflammation of the mucous coverings of the bowels will cause pain at all equal to that of these actions. Organs in a state of congestion of themselves, or in a state of engorgement as regards their supplying and nourishing vessels which are in a state of inflammation, cause pain. Wounds, bruises, cuts, great pressure on surfaces, pressure causing a stoppage of the circulation of the blood, all produce pain; as also do spasmodic actions of the bowels. Here, again, we have sympathetic nerve-actions, all affecting different parts of the body.

All pains arising from material or mechanical causes *in the body* produce *depressing* actions, whereas those arising from material or mechanical causes, *external to the body*, produce *exciting actions* in their acute stages, and depressing ones in their chronic; because they are to a great degree relieved of their exciting actions by a partnership, or by counter-irritation. The nervous appreciation is first stimulated, and the messages are transmitted along the course of the nerves to the internal parts or centres. These having assisted their progress, retain the reflex action within them—which so far affects them that results are produced, precisely similar to those from internal causes; and hence is it that we get the depressing actions,—so that action is always going on.

When the nerves from long habit have been accustomed to transmit their messages from distinct parts, and are suddenly cut off from them, they still retain along their trunks the sympathetic or sensational actions. Thus, a man who has had a leg amputated, will feel distinctly along the course of the trunk of the nerve, sensations from toes which no longer exist. The mind, also, is influenced by this; and frequently this peculiar direct nervous action can only be allayed by that which is negative or reflex. A curious instance occurred within my own experience. An old sailor used to suffer much from this; he retained his diseased foot too long, but at last consented to amputation. This was what I learned; for I knew him only with a wooden leg. When he had his nervous pains, he always called for hot water, into which he would put his wooden stump. If told of his folly in supposing that such a proceeding could do any good, he would become enraged, and his paroxysm of pain would increase; but if gratified, he took things easy, and the process actually appeared to do him good; though all must know, that there could be no real benefit. Still, here is the effect of mind over matter. We often hear of far greater follies, far more unphilosophical tenets, in respect to the wonders of the nervous system.

With *internal* nervous pain, the system refuses nourishment, and the external members being vigorous, revenge themselves by increased excitement; and when external sensations require none, and scarcely want it, the internal system has its revenge by taking more. How often is this illustrated in gout! As long, then, as harmony and unanimity exist between them both, they give and receive all communication in a friendly way, and there is health. But when the balance is destroyed, there is no end to their discord. Materiality seeks to allay the one, immateriality to bring about the other.

Nerves are nourished like all other structures, and are dependent on material powers. Nervousness is not lunacy nor monomania. There may be great excitability or great depression, not amounting to a degree that requires watching or constant attendance, though in some cases it may become absolutely necessary. This may arise from, and be the result of, imperfect functional actions; and such cases deserve our greatest care, solicitude and sympathy, devotion and kindness, as well as our highest art, to remove or mitigate them. Such affections come under the denomination of Hypochondriasis and Hysteria. The early dawn of womanhood exhibits in morbid and irregular uterine functions some of the most peculiar and ever-changing nerve-actions in the system. It can

add colours to the chameleon;
Change shapes, with Proteus, for advantages.

If so, 'twere true; for nothing is true that hysteria doth counterfeit:—for even it will "counterfeit sad looks;"—"counterfeit to swoon;" and even "sleep, death's counterfeit;" will "counterfeit oppression of such grief"—that you can scarce believe but that the mind feels all it counterfeits.

These singular effects upon the body result from the morbid influences of matter. As soon as a functional action sets in, it must be regularly performed; for, if it is not, certain specific matter, which should by such change have passed out of the system as an excrementitious deposit, is not eliminated at its proper organ. Its detention from duty, in fact, both as a mechanical agent and a metamorphosed element, interrupts a harmony and a law of health;—because Nature provides for a certain change at a certain part at a certain time. If this function never existed, she is not injured by it;—but the fact is that a portion of the functions does take place, and is not carried on; so that whilst womanhood gains a step by the partial action, she loses the health of the general structure by the other parts of that function being uncomplete—the one does not stop for the other; it cannot, it must not. Were it to do so, the result would be a permanent girlhood or childishness,—whilst the maturity of age proclaims the woman.

In all these cases imperfect actions take place:—sometimes, apparently, none at all. Yet, this is wrong—some actions must take place; and it is in those where they do not, that all the evils arise; and from these we have the Protean and changing maladies known under the name of hysterics. Now this by the public is thought only to occur, when girls get immoderate fits of crying or laughing; but how much more serious is it to be considered!

A depraved condition of the blood from elementary disturbances, imperfectly nourishes the nerves; consequently, no part of the body is so much affected by this as the nervous system;—for all nerves are surrounded by their own network of nourishing blood-vessels, and are influenced according to their proper or improper,—perfect or imperfect, nutrition.

Here, then, you see the direct action of a material on an immaterial agent. Thought and mind are both affected; and confusion of messages by these electric and magnetic telegraphs makes confusion at head-quarters. Through all the organs and structures of the body false returns are made;—so that in these an aping or resemblance to disease in any given locality may ensue; and hence we get, not a real disease, but so perfect a semblance of one, that only the practised eye can see or tell the illusion.

In refined society we hear many high-flown, sickly tales, according to the education, habits, manners, indulgences, or occupations;—in the lower orders the same takes place, according to their state of mind;—nothing is real. There is scarcely a disease in the whole catalogue of human ailments that will not be aped from a want of healthy nervous power; and the imitation is often most complete. These nerve-actions, too, have also most depressing influences, as well as highly excitable ones, on the mind; so that there is as much difficulty in arranging the one as in checking the other;—for, on the one hand, there is nothing but morbid thought, and on the other, high susceptibility, with quick and vivid appreciations.

The nerves of motion are similarly affected. Inertness and immobility attend the one—a restless, unsettled state the other. Natural bodily disorders one may understand; but these nervous ones, we may in part, but never wholly, know. Arising, as these various forms of hysterics do, from peculiar irregularities, they may for ever influence the integrity of the health, even after a perfect condition has been restored to the originating organ. I must here again observe, that females have to blame themselves for much that they suffer, and from which a little prudence would protect them.

In women, to whom Nature points for natural increase, we find nervous actions over which she has no control. Hence arises a train of symptoms that plainly show the material action on nerves to be independent of mental affections. A gradual enlargement of an organ first encroaches, then presses upon others, and we find mechanical nervousness and pains of various kinds. Next follow alterations of material elements in the blood, causing many strange fancies. As a general law, the predominance of a high condition of health and nervous power is bountifully accorded to this state;—and it may be pronounced a happy one. This shows great wisdom, as well as the deepest consideration in providential ordinances,—and must arise out of the fact that all these actions are the greatest that Nature has to perform. Constant production of vital organism and life is the base of her operations, while the laws by which they are sustained form the superstructure. I need not follow this train of nervousness, which is eventually exchanged for the more anxious ones of a maternal character.

Both sexes suffer more or less from nervousness springing out of natural causes. Certain duties of life being above their bodily powers, will bring on a train of sufferings. It should never be forgotten, however, that as far as regards the male sex, these might have had their origin at an early period, when life is young and the judgment weak, ere the passions have been tamed down, and when indiscretions were too much indulged, and follies committed, which time at last finds out, and brings home to all. Here, too, let me add, that if a little less Greek and Latin were required of them, and a little more knowledge of themselves and their wonderful structures substituted, more thought would probably be exercised. Judicious impressions at least might have been inculcated on the laws of the natural economy—not too scientifically, not too pedantically, and not too technically. Many a youth might have reflected on these.

Education in this country, however, is still most imperfect; like everything else, it has no gradation, obeys no law. It seeks to inculcate the fictions rather than the realities of life; and it teaches everything but what a man wants to know when he has grown up, namely, something of himself. When disease or nervousness seizes him, and he is compelled to pursue a recluse life, neither his Greek nor his Latin relieves him; but he flies to all kinds of medical books, treatises on nerves and the nervous system, and to all who have any reputation deservedly or undeservedly on the subject. Without knowing the structures or mechanism of the body, he seeks to know its diseases. He believes every fresh dogma, sound or unsound; and having no consistent rule for his own guidance, and no laws or rules from science, he gradually becomes a misanthrope, or lives to become a dietitian, an hydropathist, an homœopathist, a mesmerist; tries upon his constitution every nostrum and everything that anybody has told him to do or not to do, without the least benefit, and dies young, though an old hypochondriac. This is often the harvest of a fast seed-time. Nevertheless, there are many who from inheritance of a low degree of nervous power become hipped or nervous, and have natural deficiencies in the power of appropriating food and nourishment.

Again, when the wear of the system exceeds the repair of it over a given time, and there is too long and too anxious continuance in this, whether in professional or business pursuits, the nervous system often fails. As inflammations and fevers are produced by starvation—because Nature will excite actions anywhere and in any part to make material elements of life,—so also the nervous power will gather strength by its own stimulus and use, until it exhausts itself and every healthy action; and we get affections of an overwrought brain.

Delirium, then, does not depend on the excess of the circulation of blood in the brain; for a deficiency of that element will cause it. See the delirium in many phases of the wasting diseases—of cholera and low fevers. Depletions, also, from loss of blood will produce it, as they will produce even a paralysis. Excess of circulation in the brain will produce coma, trance, or prolonged sleep, faintings and dizziness; and so also will great debility and want of blood. The terminations of the arterial fevers, which have previously produced high excitements and long-continued watchfulness, will show what is termed their crisis in long sleeps. If you destroy their action by abstraction of blood, you produce a dangerous delirium; or if you purge and so take away the vital elements from the great laboratory of the system, and so do violence to a natural law, the same effects will be produced.

Fevers have been termed the opprobria of the healing art, even by the most talented of the medical body, simply because doctors themselves will not learn natural laws. Men who for years have ruled the destinies of physic in modern days, declare that fevers are now *more scientifically treated*, simply because *less* is done by art and *more* left to Nature. To what base issue must we come at last, that great wisdom is required to prove a negative? Nerves, like any other organic structures, may be destroyed and renewed. For instance, if a large abscess occurs, there is extensive disintegration of solid material. During the progress of this change the pains are often intense, clearly showing that destruction of nerves is going on. When the abscess has discharged itself, and the new material is in the course of reconstruction or repair of the parts, the nerves push along through them to give the same sensation it formerly possessed. So also with wounds or highly-destructive ulcers; with bones in the progress of exfoliation and during their reproduction, nerves are destroyed and are renewed.

Nervous development occurs up to adult life, and remains in full activity for many years. Nervousness does not accompany infancy or extreme old age, for then,

> Nerves are in their infancy again,
> And have no vigour in them.—*Tempest.*

Whatever concerns the nerves calls forth an army of remedies directed in two divisions to the internals or centres, and to the externals or surfaces, constituting the two great battledores for the nervous shuttlecock. At one time all medicine and dietetics are directed to the one in the form of iron, steel, and tonics; and because Nature herself often relieves by fluxes or sudden discharges, so they are imitated by art. The one is a sure and successful act, because it is well known on what principle it is done; the other is an uncertain act, as is often proved by its want of success; because it is done by inference only, and consequently on an uncertainty. At another time, art is induced to apply irritants and counter-irritants, liniments, blisters, burnings, setons, and the whole art of petty savage torture; because Nature relieves by skin-eruptions, which are frequently natural counter-irritations. The one, as a matter of course, often fails, the other usually succeeds.

To isolate or explain all the varied actions of the nerves would be plainly impossible. They are so allied and bound up with other matter, that we try in vain to do so; and vain also is the trial to separate them from their corporate connexions. Specific treatment of all their Protean changes is a morbid folly.

What greater facts do we require for a better discrimination in the administration of medicines than these? They should lead us to pause, before we commit violences on the system by drugs. If no other consideration guided their uses, the nerves, and through these their great centre, the brain, and all that the brain excogitates either as a reflective, impressive, and inventive source of mind and thought, should at least be regarded. Wrecks have been made of minds and nervous systems by the false application of medicines to bodily diseases; and again, bodily diseases and debility have ensued from want of nervous power, destroyed in the vain endeavour to force Nature to the standard of human suppositions and inferences. The records of medicine, however, are not barren in facts for our guidance; but, nevertheless, they are so hedged-in by false theories and prejudices, that the latter actually predominate and overwhelm them. In treating the body, therefore, for any form of disease, the results on the nerves and the mind should always occupy a deep thought. In all ailments, the broadest generalities are the safest and best means to be pursued. Care and gentleness, discretion and thought, are most necessary; and in all instances, the most profound discrimination is required.

Thus, the laws which I have propounded can be brought to bear in a marked degree. The hypothesis of health as a standard will be found of the greatest service. Incipient attacks may be checked — confirmed ones mitigated or prevented—and the most violent ones assuaged by simply treating the whole body on the principles of natural law; and doing no violence to its distinctive bodily or nervous characteristics.

# CHAPTER XI.

## THE SENSES AND THEIR ADJUNCTS.

Duality of the organs of sense—The EYES the windows of the brain; their structure, functions, and defects—Spectacles and eye-glasses—Short-sight and its causes in infancy and early life—Old sight, how to be managed—Optics and their application—The use of the eyelids and eyelashes—Cure of accidents and injuries to the eye and surrounding parts—Shades and bandages—General directions—The EARS: their structure, functions, and complaints—Deafness and its treatment—Aurists and their quackeries—The NOSE: its structure and affections—Spitting, hawking, and their uses—Tingling in the nose, and its cause—The Schneiderian membrane—Polypi—Remarks on snuff-taking—The TEETH: their structure and diseases—Modern dentistry—Effects of calomel on the teeth—Artificial teeth—The TONGUE, as an organ of sense—Sense, motion, instinct, and reason, considered as adjuncts or supplementary senses—General deductions on the senses.

NATURE, whenever she can do so with advantage, doubles her organs. This is instanced in her giving two eyes, two ears, and two nostrils, formed by a divided chamber in the nose. In other cases, she expands these even more extensively, as I have already shown respecting the papillæ of the tongue, each of which is a separate organ of taste. For the sense of touch, the hands and fingers are the organs used; though the lips also afford exquisite means of appreciating this, as in the cases of love and affection. The whole body itself, also, performs these functions of touch. The twofold division of the brain, the two lungs, the two kidneys, the two breasts, &c., the two arms and hands, legs and feet, all attest a care and provision. Even the double purposes of single organs and secretions manifest a happy union between the chemico-vital actions and the mechanism assisting them. The double set of blood-vessels, the absorbent vessels, and those which carry elements of new materials—besides many other matters and parts that combine to make up the living animal or man for all purposes intended. All these indicate the same wise provision of Nature.

THE EYES are the windows of the brain. Their formation is wonderfully beautiful, and their nerves are of the largest kind. The two chambers in each eye—one containing a watery fluid, and the other a crystalline lens—absorb the objects and perform the first function of sight. The *iris*, or part next the white of the eye, forms the more striking portion, giving to each individual the colour of his eye. It also has the power of contracting or dilating in a perfect circle, leaving a black centre, the *pupil*, for the admission and regulation of light, and conducting the impression of the object to the *retina*, or optic nerve, and thence to the brain. Lord Bacon says: "As long looking against the sun or a fire hurteth the eye by *dilatation*, so curious printing in small volumes and reading of small letters do hurt the eye by *contraction*." With all deference, however, to so great an authority, I am non-content with his lordship's observation; for I believe the reverse to be the case. The iris contracts in a strong light, so as to admit as little as possible, as it would be injurious to the sight, or even the brain, to face too great a light; while, on the other hand, in the dark, the iris dilates to its utmost extent, in order to obtain for the eye the impression of the object, and get all the light it can. So, likewise, in looking at small print the pupil becomes dilated, and the constant habit thereof injures the eye by dilatation; for the eye wants all the light it can collect to read the smallness of the print. This is injurious, and should be avoided as much as possible. We may suffer a loss of hearing, smelling, taste, or the fine sense of touch, and only suffer inconvenience; but the loss of sight is irreparable. Even a defect of power in the organ of sight is a great drawback.

One cannot but be struck at the increasing number of young persons now wearing spectacles or eye-glasses. It may be presumed that a certain per-centage of these, especially young men of weak minds or limited capacities, adopt the eye-glass as a fashion, until they are old enough to know better, and then probably finding that the organ, having been so misused, has been weakened only from their own folly, they are compelled to seek the optician's aid. Taking those, however, who are obliged to use them from sheer necessity, I am of opinion that this portion of the community has been of late years greatly on the increase. If the parents have not had short or defective sight, I would ask, why should their children? In looking about for causes, I have great reason to ascribe blame where popular custom would oppose me; and here I go back to their birth. Nothing has ever appeared to me so inconsistent as the admission of too much light into the lying-in room. It is quite sufficient that a child has eyes, and that they appear good; but what is the use of sight to babes? They cannot distinguish one person from another, or one thing from another; and why should we then expose such delicate organs to a blaze of light? Depend on it, much harm has been done to the eyesight by excess of light in the earliest stages of infancy, and more especially if either parent has weak eyes; for, besides an hereditary cause, great light aggravates the mischief; and therefore a dark lying-in room at first, a moderately light nursery afterwards, and the non-exposure of infants to a strong light for some months, should be strictly enjoined. I much incline, therefore, to think, that an injury to the sight from an excess of light at this early stage of life is a great source of short-sightedness to many young persons.

The eyes of infants, in fact, must be instructed, just as their minds are in after-life. Greater attention to this subject, then, may prove of great importance to many. Too strong a light in a sleeping-room is bad, especially if persons have their beds opposite the window; for to wake suddenly out of sleep, with a strong glaring light on the eyes, cannot but eventually injure the strongest and most healthy sight; and, where it is naturally weak, or there be any hereditary disposition towards a debility in the organs, this custom must of course exercise very pernicious effects. Persons waking from sleep should have the eye prepared by a subdued light first; and if the sight be good, the time occupied in partially dressing will be quite sufficient to prepare the organs for meeting a stronger body of light.

This is especially to be remembered in summer-time, where the chamber has an eastern aspect.

Good sight may continue for many years; but, as we get older, and it becomes defective in its inner chambers, we then require the aid of art; in which case great care should be used. The first indication is, that we cannot see at the same focus as we were wont to do, but are obliged to hold the book or paper at a little further distance from us than before. This may go on for some little time; but those who have to use their eyes much in writing or reading should be careful at this juncture. In daylight, they appear to suffer no great inconvenience; but, when candlelight comes, I have seen the most pernicious errors adopted, and amongst others, that of placing a light between the eyes and the paper to be read. Now, I have no hesitation in saying, that this is one of the most injurious things to the sight that can possibly be done; and those who do not listen to the caution will have to pay dearly enough for their neglect. The light should always be placed behind the individuals; and while they are in the shade, the light itself should be thrown on the subject to be read or seen.

The first indication of the object being held at a greater distance than before, at once marks the time for artificial aid, and the person so affected should at once seek the optician's assistance to preserve the eyes. At first, the spectacles will only be required for the artificial light of the evening. The following hints should be attended to. If at the usual focus of reading the print should appear smaller than usual, at a little further distance it will increase in size. This, indeed, is the first hint of the sight being impaired. Knowing this, do not persist too long in being satisfied with it; but, if dissatisfied, never use an old person's spectacles, for you will thus make bad much worse by using glasses of a stronger magnifying power than requisite, and so actually make your eyes older than they really are. Opticians have prepared glasses from the very lowest magnifying power upwards to the highest, so as to meet all cases. If, therefore, the sight requires its earliest assistance, it is very evident that the lowest powered glass is the first to be used. How imprudent, then, is it to begin of one's own accord with a higher power than is requisite!

It may happen, moreover, that one eye may require assistance before the other; though generally in a previously good sight both become uniformly affected. Try them; for should *one* alone be affected, a pair of spectacles with a low powered glass for the defective eye, and a plain glass for the other, is the best, or a single glass for that eye alone. When used, however, both should be kept open, thereby making both equal. A single glass, moreover, should not be used when the sight of both eyes is equal; for then one eye will be strained at the expense of the other—that alone which receives the assistance doing all the work. In this case, use spectacles or a double hand-glass of equal power, with both eyes alike. A manufacturing optician is the best person to apply to—one who will take pains to point out all this; whereas a mere seller of spectacles, like a vendor of ready-made clothes, would let you have just what you would yourself like to purchase. It is nothing to him, whether you be pleased, or suited, or blinded. By the former you are benefited, while by the latter you only get discomfort or permanent injury.

Whatever work you be engaged in, let the light fall on it, and always keep yourself in the shade. Place your back, then, to the window, if reading by daylight—when the light will, of course, fall upon the object. When writing, get a side-light, if possible; but if you have a front light, as under a window, shade it a little, bringing only its rays on the paper, or let the top of the head form the shade. In the same way, with a candle or lamp, throw the light upon the paper, and do not let the glare of light go direct to your eyes. If the light be above you, as from a chandelier, so much the better. If in the habit of using the telescope, try, if possible, to keep both eyes open; for by shutting the opposite one to that used with the glass, the sight is strained and ultimately weakened. Keeping both eyes open regulates the sight of both. Looking through a telescope at distant objects, however, is widely different from reading those that are near with a single eye-glass.

The sight of the eyes varies very greatly. Some persons can distinguish objects at a long distance better than others; while closer objects are not so distinctly seen—others on the contrary being exactly the reverse. These are called *long sight*, or *short sight*, according to the circumstance. Some require spectacles to see objects before them at a distance, yet do not require them for reading or writing; while others require them for reading or writing, and not to see more distant objects. Many may have equally good sight, and yet have a different focus. Again, some people cannot recognise colours, and without having any apparent defect in the eyes, are unable to distinguish a green from a red, or a white from a black, and so on. This may seem very strange; but, nevertheless, it is a well-known fact.

Nature has given us eyelashes, so that the lids, when brought close together, can be seen through, as through a veil—the eyes being thus protected from too strong a light, or the effect of a high wind, or from dust or foreign bodies. The lids are involuntary in their action, as well as voluntary. In the former case, they seem to be under the regulation of a peculiar attribute of the body, as opposed to reason or instinct, called *sensation*. The ball or globe of the eye is protected by a mucous membranous covering, which is reflected on the under sides of the lids; and the secretion on this membrane acts as a lubricating fluid, giving free play to one over the other. Any excess of this fluid is carried into the nose through a little orifice at the inner corner of the lower lid; whereas, if more be secreted than can thus be carried off, as in the act of crying, it falls over the lower lids in the form of tears.

Notwithstanding the protection of the eyelashes, foreign substances often get into the eyes. When this happens, the organs should be closed and kept so, if possible, for a short time; because the action of the lids on the globe or ball of the eye causes a gravitation of the fluid secretion to the inner corner near the nose. On dusty days, for instance, and during high winds, these inner corners may be noticed, in those obliged to go out, to be filled with small grits and foreign substances, showing that the eye has the power of cleansing itself. Should insects fly into the eyes, the lids should be pressed upon them to kill them, when they will instantly become foreign bodies that will gravitate towards the inner corners, and then become excluded.

The eyes are subject to many diseases, both of their internal and external structure. The external membrane, or *conjunctiva*, may become bloodshot, first from an engorgement, and then from a rupture of some of the smaller vessels, which in their healthy state carry a white blood, giving the white appearance to the globe of the eye external to the iris. Well—suddenly all this becomes suffused and red. Any slight lotion of a styptic character, or that acts in that way, will do good; but nothing is so pernicious, as binding an eye up either with a handkerchief or in linen, or the use of a shade. The membranes of the eye are what are termed mucous membranes, and should be always exposed to the action of the air. Air, in fact, is as good for healing a bloodshot eye as any artificial application. *Never, then, bind up the eyes or exclude them from the air in any disease of these membranes alone;*—for if you do so, you will have to abide the consequences. These membranes form no portion of the gift of sight—the functions of which lie wholly within the eye and its chambers.

The external membrane is subject to a certain dryness resulting from deficient secretion of mucus; and the sensation is then very painful, just as if sand were in the eyes. Small ulcers, too, may arise on this membrane, and purulent matter be discharged therefrom. It may be inflamed, also, from irritating matter getting into the eye; but whether this arise from natural or foreign causes, the use of lotions will be found very agreeable for cleansing, soothing, and acting as a tonic thereto. When any natural disease of the inner part of the eyes from engorgement of blood, and either inflammation or congestive actions ensue, the system must be treated generally; and you will derive great information from the tongue. In short, judicious general treatment will often do more than directing too much especial attention to the organ itself; for you should never forget that the eyes, like other organs, contain within a small compass their own nerves, arteries, veins, absorbents, serous and mucous membranes, and that all these vessels and parts strongly sympathise with certain conditions of the body and the blood. If any part of the eyes, then, has been the subject of disease, it becomes a peccant part, and disease will fly to it on that account in preference to another.

Oculists as a class devote their attention too much to specialities; and none more than they have used the mercurials boldly and unsparingly for eye-diseases. Of late, I am told, they have become more chary in this. It may be so; but they are bad enough even now, and have still a great deal to learn, like most of us. In all cases where operations are necessary, as in cataract and the like, their manual dexterity in the use of the knife renders them very useful members of society; their constant practice in this department alone giving them a superior claim over all others to be entrusted with these matters. Still, as far as I can judge, I do not see that they are more advanced in the knowledge of the laws governing diseases of the eyes than the generality of practitioners, nor in their mode of treatment either.

When the eyes from internal or deep-seated disease are intolerant of light, a darkened room is always a better remedy than the use of a shade. If exercise in the open air, however, is imperatively called for in the condition of the patient, and when the light would be too oppressive, the greatest care is required. A shade of the very lightest character should be procured, and fitted with the least possible pressure on the head and temples, at a sufficient distance, too, from the organ to admit the air to the outer or mucous membranes; nor should it ever be forgotten that, while endeavouring to cure an evil arising from the central chambers of the eye itself, care should be taken not to induce disease of the membranes of the external parts, which most assuredly will be the case, if the air be excluded therefrom. Nothing, therefore, is so bad as tying a handkerchief of any kind, silk or linen, over the eyes. If mucous membranes subject to the atmospheric action, like those of the eyes, are thus treated, they get softened; and by long continuance of this practice, I have even seen the globe itself protrude through them, and the eye lost for ever, with consequent disfigurement. For simple inflammations, attended with inability to bear the light, I have often seen certain of "the million" tie up their eyes in this manner *on their own responsibility*, at the risk of losing their own sight, as well as that of their children, whom they always serve in the same barbarous manner, for want of knowing better.

Children and young people of very fair complexions and very light blue eyes are subject to blear eyes, or extremely red edges along the margins, whence the eyelashes arise. This in its first mild stage comes with a sticky dry gum at the root of the eyelashes, and then extends to a sore inside as well as outside of these spaces. This is a great disfigurement, and should be cured as soon as apparent, on the principle to be observed with all skin-diseases, that of never allowing them to gain a head. The golden ointment, or red oxide of mercury, is the best application, as it acts as a stimulant to the parts, and destroys any excess of growth. When this disease has gained ground, although the parts seem eaten away, as by a corrosive action, yet they assume more the appearance of proud flesh, which never takes a skin-covering, and unless a healthy base is secured, the disease progresses. The nitrate of silver would be beneficial; yet this is not very easy of application. The above ointments do not become absorbed, so as in any way to affect the system by the mercury in this form. They merely stimulate, while the unctuous portion becomes chemically rancid from the secretion of the sore itself, so that by this union a cure is effected.

In the pain caused by bloodshot eyes, a drop or two of laudanum placed at one corner of the eye with a camel's hair-brush will relieve it. The mucous membrane of the eye, like all other similar membranes, can well bear stimulating; and therefore dilute nitric-acid in water forms a valuable collyrium. Goulard-water (which is an acetate of lead) is much used, but is not so safe as the dilute nitric-acid lotion. Both, however, must be used with great caution, and very weak. Simple rose-water, or plain cold water are also good, and sometimes the eyes are benefited by tepid water, or milk-and-water. Many little affections of the eyes are got over very cleverly; but whenever any disease of a persistent character attacks them, they are most assuredly the outlet for some constitutional disturbance, and take as much the onus of disease from other parts of the body, as a disease of any internal organ or structure. If we could get at any internal organ of the body, we should no doubt mess it about much in the same manner as we do the eyes; but as we fortunately cannot do this, we are driven to treat the system generally, and this cures it. Why then should we not serve the poor eyes in the same manner and leave them alone? Were we only to do this, there would be much less of eye-disease than we see at present.

THE EARS are so constructed, that nothing can get into them from the external parts to the head. The bones in which the sense of hearing is contained, and from which it is conveyed to the brain, support each side of the skull, and are, in fact, its thickest and most solid parts, forming the buttresses or piers from which the arch of the skull springs. It is in the central part of these bones, that are contained the beautiful and complicated organs of hearing; and, curious enough, these bones are the first formed in the embryo of animals. In deaf and dumb people they are entirely solid; whereas, in those who have the sense of hearing in full perfection, they are more hollow, and formed into spiral caverns, so as to allow the admission of air into them by the mucous membranous passages situated at the back of the nose. I mention this for the sole purpose of explaining, that deafness, when arising from a cold, may be produced by the thickening of the lining of these inner air tubes, the nervous membranes of which are as liable to congestions or inflammatory actions as all similar membranes in other parts.

Deafness may arise, too, from the accumulation of wax in the external orifice of the ear, destroying the sensibility to sound which is conveyed by the air to the drum of the ear, through the undulatory motions of the atmosphere. For some distance into the outer part of the ear the skin is dry; but as it approaches the drum, it is moist, and has the character of mucous membrane. It is necessary, also, that there should be moisture here; and thin moist wax is therefore secreted. In some persons, this has a disposition to inordinate action and collection; in which case, unless it comes away, it hardens, and should then be carefully removed; though in others there is no occasion to do so. Indeed, I consider it very injurious to be constantly picking the ears, especially when there is no necessity for it. All mucous membranes should be constantly acted upon by air; and to close up the ears with cotton is a very pernicious practice. Yet there may be times at which this external orifice should be kept warm. In these rare cases, a piece of cotton wool should be used sufficiently large to block up the outer opening, but not to penetrate the chamber. Small pieces, indeed, have been known to get into the ear, to absorb the wax, become hardened along with it, to continue there, and so cause a mechanical deafness.

Deafness, therefore, from external causes may arise from this source, as well as from natural accumulation and hardening of the wax; or from too dry a state of the mucous membrane immediately upon the drum of the ear and round the margin; from frequent picking and cleaning of the ear, and constantly wiping away the necessary moisture; also from syringing with small squirts or syringes, which do not send a sufficient body of water to bring away any hardened wax that may have accumulated there, and thus only add to its density; or, lastly, from an irregularity in the calibre of the opening,—a fact I have often witnessed, especially in those subject to accumulation and hardening of wax; for where the opening is of a proper calibre, the wax may become hardened, suddenly loosened from the drum, and fall out, whereas, in those of smaller calibre, it has no such chance.

Deafness, again, may arise from the undulation of sound going too forcibly into the ear, such as might occur from artillery, or from the constant hammering of boiler-makers, two-thirds of whom are deaf from this source. There is very little whispering or talking going on in boiler manufactories. The din of hammering is so great, that the men are compelled to keep steadily at their work. The external passage, also, of the ear is subject to small boils or abscesses that close the outer passage. These will often prove extremely painful; and if much swelling takes place, should be treated with cold applications, for the purpose of concentrating them, and when they have broken, with warm applications, to hasten the discharge and excite a curative action.

Deafness will sometimes arise from cold and from congestive action of the mucous membranes; nor should it ever be forgotten, that the same sympathy between approximating mucous membranes about the eyes, nose, mouth, inner air-membranes of the ears (called the Eustachian tubes), or wherever else they have connexions, may happen precisely in the same way as the sympathetic actions of mucous membranes throughout the whole alimentary canal. Deafness from external affections may, therefore, be benefited by external or mechanical remedies,—such as syringing, or the application of oil or glycerine. Deafness from a morbid condition of the inner-membranes, either congestive or inflammatory, is to be treated medically, according to the indications of the tongue.

A sixth class of deafness may arise from the internal lining or structures of the internal ear, within the cavities of the bones themselves. This class is the most difficult to treat; but I am clearly of opinion that in these cases the less that is done to the ears themselves the better, the general state of the body being that which demands our chief attention. These are the cases that give rise to the sect of Aurists, whom I have never found able to do more good than the accomplished surgeon or physician, especially such as shrink from too great specialities, but take the more comprehensive and general views of treatment. As I have spoken of this under the head of Quackery, I shall only warn all persons subject to deafness, that there is such a thing as congenital or hereditary deafness—some peculiar defect that may show itself at an early age or ensue later in life, and which can never be cured or benefited, similar to the *Dysacoa senilis*, or deafness from old age, that always arises from organic lesion within the bone containing the sense, and of course can never be cured or remedied.

Young people who suffer from this should be careful, then, not to be made worse through excessive interference, either by the regular army, the militia, or the volunteers of medicine. All such, indeed, I should advise to be satisfied, if they retain the sense at all, and thus save themselves the sufferings certain to be inflicted on themselves by their persecutors, as well as on their pockets, which are the real citadel for attack, and form the true key of the position. Attend, then, rather to the general health; and act with common sense and discretion in this as in everything else.

THE NOSE.—The nose is situated in the middle of the face, and appears externally as a simple organ, though it has an internal twofold division, each having its own external nostril. The base of this division is composed of soft light bones internally very intricate in their character and uses. It has also a posterior opening, and is lined with mucous membrane. It is a bad habit that of picking the nose. The membrane is delicate and sensitive; and children get sore noses more from this than any other cause, their little complaints being also rather difficult to cure. In the Schneiderian or mucous membrane of this organ is situated the sense of smell, which is often capricious, fastidious, and sometimes highly sensitive to offences against it, whether of the most agreeable kind or the reverse. A truly healthy condition of this sense can stand almost anything; whereas, in its morbid actions, the effect upon it of certain savours is so repugnant as to cause faintings, loathings, vomitings, and affections of the brain, leading to most unpleasant results. I have alluded to the acuteness of this sense, and its highly sensitive condition in invalids, under the head of Nursing and Nurses.

The membrane of the nose, like all other mucous membranes, is liable to congestive as well as inflammatory actions, and these are shown in colds, by a morbid thickening taking place with excess of secretion. These secretions are always more or less acrid, and in many persons so much so towards the upper part, that it falls through the posterior opening and lodges in the throat, leading to the necessity of frequent hawking. During sleep, also, the secretion will collect and find its way down the throat in the same manner. Some families, both male and female, are peculiarly subject to this action, which leads them to the necessity of clearing their throats well as soon as they rise in the morning. This is absolutely necessary, and the neglect of it leads to bad results; for whenever this arises, other contiguous mucous membranes may always be considered in the same state,—as, for instance, the upper part of the windpipe, and along its course, even to the lungs. Families having a tendency to the congestive form of consumption are especially liable to this nasal congestion; and whenever this occurs, the wholesome practice of hawking well the first thing in the morning should not be omitted, or considered in any more offensive light than the necessity for ridding themselves of this or any other natural excrementitious matters of the body.

The effect of swallowing secretions of this kind owing to a sense of delicacy or good manners, which is too frequently the case, is most pernicious and unwholesome to the blood; for the stomach receives it as an excrementitious deposit, and can only get rid of it, as it does all other materials, by digestion. It is therefore so treated. Inordinate secretions, then, when they become excrementitious, should be rejected whenever they can be got rid of conveniently. Nature, however, is very provident; yet even he who expectorates most, cannot always effect the disposal of Schneiderian mucus legitimately. Indeed, the rapidity of its collection, with the constant act of deglutition—performed a thousand times a day as an involuntary act by every one—as much results from a collection of this secretion passing down the posterior nares, or back parts, as from any other cause.

A provision is here made of a double character, that considerably mitigates any of its evil effects. First, the nose is the recipient of the surplus secretion of the mucus of the eyes. Beyond what the eye requires for use, all that the ciliary margins retain gravitates towards their inner portion, and finds an outlet down a small aperture in the inner part of the lower lid (*puncta lachrymalis*). This secretion from the eyes is of a saline or saltish character. The tears are, therefore, made useful for lubricating the upper part of the nose, and purifying the acid character of its secretion,—a fact that considerably tends towards diminishing the hurtfulness of the secretion. Here is another proof of self-dependence, as well as of the elective action of the body in gaining its directly useful elementary juices.

When sorrow leads us to secrete tears more plentifully, the surplus cannot be carried away quickly enough down the ducts into the nose; so the tear flows over the margin of the eye upon the cheek. Just before it does so, however, the ducts having been well exercised, a burst of crying takes place. Many may also have noticed the tingling sensation at the top of the nose from the excess of the salt tears having run down it. Excessive secretion of mucus from the nose in the act of crying is due partly to the tears being carried in excess down it, and so affecting the Schneiderian membrane itself by a sympathetic action. As to the largeness or smallness of the nose, Nature always regulates this according to the individual favoured or otherwise; and this has formed the subject of some curious speculation of character, the nose being by many supposed to influence character; but this admits of dispute. Whether, therefore, the character influences the size of the nose, or *vice versâ*, I must leave entirely to the curious in nasal or nosarial shapes.

The nose is subject to organic growths from its internal surfaces, such as a polypus or pendulous growth from radical roots; the cure for which is by grasping it with a pair of forceps, making one or two twists, and then pulling it forcibly away. The fibres, or roots, being thus torn out at their base, the mucous membranes soon heal.

Persons who take snuff inordinately deaden the action of smell. The sense, however, may remain very perfect, when snuff is taken rationally. Different species of snuffs, again, exercise different actions on the mucous membrane of the nose. Those which come away with the first secretion of the membrane are the least pernicious, whilst those, on the contrary, that clog and cake upon the membrane, are no doubt injurious. In the former case, a man may take snuff for years and not have the Yankee puritanical nasal twang; while, in the latter case, he may get it in high perfection. There are clean snuff-takers, too, as well as dirty snuff-takers. There are those that waste their snuff extravagantly while thus indulging, and others who take quite as much as is necessary without wasting it.

This, like all other habits, may be pursued to excess, and then it is, like all excesses, bad; but instances are very rare of ill effects arising from only moderate indulgence. I have heard some affirm that snuff cakes in the head. Fudge! What do they know of anatomy, who say so? Others allege that it affects the stomach. What will not excess in anything do? I am not writing a homily on excesses in anything;—they speak for themselves. They are the varied common-place arguments which everybody can measure with half a grain of sense.

THE TEETH.—According to the character of the animal and his manner of seizing his prey or eating his food, are the number, shape, and character of his teeth. As regards man, his teeth are situated in his upper and lower jaw, and consist of eight cutting teeth in front, four tearing or eye teeth, eight half-double teeth, and eight grinding teeth, making twenty-eight; in addition to which some have four more, others two, called *wisdom-teeth*. These last are dispensed to him irregularly; and their coming sooner or later, or not at all, will depend on many causes. Their principal use appears to be more for aiding the mechanical arrangement than for anything else. If the jaws grow and leave any space between the last grinding-teeth and their angles, then these wisdom-teeth are necessary to act as wedges in keeping the whole set firm. They are usually the last to come and the first to go. If a wisdom-tooth is removed from its being troublesome, for want of space, or from decay, the grinding-tooth next to it gets more play. It is amenable, however, to the same laws of decay, and that being the case, may soon be lost.

The general healthy or unhealthy condition of the teeth seems to depend on constitution. Some persons, in whatever way they live, whether they take care of their teeth or not, have and keep a good regular set free from decay; while others, with all possible care and attention, lose them from early decay. These things seem to run in families. I have alluded to this subject, as regards children. As it affects adults, care and attention to the teeth are incumbent on them for many reasons, such as cleanliness and keeping them free from accumulations at their bases; and where the teeth are good and sound, a hard brush is better than a soft one. When matter collects at the base of the teeth, it breeds a scurvy in the gum, and causes a very disagreeable odour; nay, even when the breath be pure, it may become tainted, as it passes out of the mouth bearing with it the odour from the collected tartar at the base of the teeth, precisely as it may bear the odour of a decayed tooth.

Some persons, with all the care in the world, have decayed teeth at an early age. No doubt, habits of living affect the teeth, and stomach and lung-affections greatly tend to destroy them, the former from having an uniform predisposition to a foul state, and the latter from being in a morbid and congested state, causing greater concentration and pungency of the carbonic-acid gas. Fœtor of the breath, too, will arise from certain states of the stomach and lungs, as well as from inattention to the cleansing of the teeth, and will be caused also by decayed teeth or habitually smoking tobacco.

The teeth being intended for the mastication of the food, mastication has necessarily a double action;—its first being to disintegrate the food, in order to save the stomach a harder duty; the second, a mechanical action to excite secretion in all the glands and follicles in and about the mouth, for the purpose of lubricating the whole mass, before it is swallowed. Morbid conditions often arise in the system from disregard to this mechanical action, and deprive it of its due amount of self-dependence from these salivary sources; for it is evident, if the food is not properly masticated by those who have good grinders, or from inability in those who have lost them, that there cannot be so correct an action in the secreting glands about the mouth, though Nature may furnish a sufficient amount of secretion for the mass to be swallowed.

Although the teeth decay sooner in some persons than others, according to their constitutional idiosyncrasy, nevertheless, any attack of illness may hasten this process even in those who have sound teeth. Here, again, the pernicious use of the mercurials is a fruitful source of decay. Having extracted thousands of teeth from the jaws of all classes, I have abundant reason for saying this, without taking into account the inquiries I have made of all classes, from the man who would get his one or two guineas fee, to him who extracts them for a shilling. The observation of such persons of all classes confirms my own experience, that to the mercurials they owe the greatest part of their practice.

Those, also, who have had most experience in dentistry never fail to detect the mercurial fœtor of their patients' breath. It does not, indeed, require a person to be salivated to exhibit this. Those who are in the habit of taking their accustomed poisonous blue-pill, get their secretions tainted, and suffer accordingly. A most fruitful source of decayed teeth in adults is the folly of parents in having given them calomel on every occasion when infants and children. I cannot help tracing the fact, now so patent to every legitimate practitioner of medicine—that of the disuse of the lancet and the non-necessity for bleeding and depletion now-of-days, even in inflammatory actions and fevers—to the depressing influences of the mercurials, which have now gone through two generations, and show their effects accordingly. Unless many forms of fever are supported at particular junctures, if the patients should not die, they take a long time to recover, and convalescences are in consequence prolonged.

Within the last few years the dentist has singled himself out for the exclusive treatment of the teeth; and mechanical talent has been drawn into the arena to furnish false teeth, from one to a whole set. This profession, indeed, forms quite a host, as compared with their numbers only a generation back, when there were only a few straggling competitors in the field. It being evident, however, that they have arisen with the occasion, the public have nothing to thank the doctors for in this respect; though the dentists can never be too grateful to them, even for their very existence, as the one class have caused disease of these bony structures, simply for the other to repair or replace them artificially.

When a tooth becomes decayed, I recommend its being at once freed from the carious matter (there is no end of instruments ingeniously constructed for this purpose), and properly stopped before it begins to ache. When this painful act has begun to take place, it is only a chance that stopping will succeed; because the nerve, having been once exposed, is always liable to inflammatory action at the base of the tooth, and stopping *then* does a mischief. The skin covering the bone of the tooth in the socket of the gum then becomes inflamed, and an abscess is formed in the shape of a little bag, causing excruciating pain along the whole side of the jaw, where the offending bone is situated. The swelling of the face and enlargement of the gum and jaw fully show this; and when persons have come to me thus circumstanced, I have at once directed the removal of the tooth. It may have been beautifully stopped by a first-rate mechanical hand; but the head that directed it had no anatomical or surgical knowledge. Be this done ever so cleverly, the little abscess is shut up, further to expand and torment the sufferer. The skin thus gets detached from the point of the fang, which is itself often very sharp and serrated; so that, if the abscess grow large enough to break, a pretty irritation will be afterwards kept up by this sharp edge always exciting the nerve beneath.

This irritation, I may remark, is a fruitful source of disease in the socket-bones or alveolar processes. In some persons even, these last processes, being of a soft spongy nature, become absorbed; when the gum will recede and the teeth drop out whole, or appear as long and large as if the mouth were fitted with small milestones. The sympathetic actions of mucous membranes, moreover, are very perceptibly shown in all cases of toothache, by the affections of the four specific sensuous organs—the eyes, ears, nose, and tongue—which all more or less suffer intolerable pain, though the ailment is still denominated a toothache. Thus a decayed tooth may be the exciting cause of great damage to any one of these organs.

In conclusion, one great fault in fitting-in artificial teeth is that of getting the model of the required portion of the jaw cast too soon after a tooth has been removed. The consequence is, that the new tooth, though fitting well at first, ceases to do so after a time, because the gum has since further receded. Before artificial teeth should be thought of, either owing to the natural teeth having come out of themselves or required to be extracted, time should in every case be allowed for the gum to recede to its full extent; and this is more especially necessary, when several require fixing, either in the upper or lower jaw, or both.

I have elsewhere spoken of the tongue in connexion with the sense of taste. The sense of TOUCH is situated in the hands and toes; for many persons born without hands or arms have used the toes instead of fingers. The whole of the body, also, is sensible to touch. Thus the five senses have hitherto been understood to belong to certain specific organs devoted to them;—sight to the eyes, hearing to the ears, smell to the nose, taste to the tongue, touch to the hands and other parts. Still we have a right to speak of *sense* otherwise than in connexion with these organs,—that is, as a peculiar attribute of the brain. A person is said not to have the sense to see a thing. Now what is understood by this? It is this,—that he does see, but does *not* apprehend, or comprehend, or appreciate. Another is said not to have the sense to avail himself of what he hears, either to his advantage, or to enable him to escape danger of which he may be forewarned, and this simply because neither his reason nor instinct appears perfect.

Now the brain is the organ of two distinct senses—namely, reason and instinct,—however these qualities may be subdivided in man and the lower animals, according to their characters and species. The divisions or divarications of either of these two distinct senses are not to be classed as being of themselves distinct, but only that sense from which they spring. A man or animal, for instance, may be thoroughly divested of every one of the ordinary five senses, and yet possess quite unimpaired the senses of reason and instinct. The body, also, has its two distinct senses—namely, that of motion and sensation, irrespective of reason and instinct, or any of the five original senses. First, as respects motion, we all know it to be of two kinds—voluntary and involuntary; the latter being exercised without calculation, instinct, or reason. Secondly, as regards sensation, it seems to be an appreciating act of the body itself, with similarity of independence, and appearing alone as a physical sense, irrespective of instinct or reason, or any of the five usual senses. This sense may be illustrated by the sensitive plant, which recoils from the approach of the hand without being touched, and yet can have no feeling or reason, or any of the five other senses. Sensation, as it exists in us, may also be similarly influenced.

A few illustrations will serve to make this apparent. A person may be passing any spot where the building or repairing of houses is going on, full of deep thought, inapprehensive of danger from either reason or instinct, and no one of his other senses informing him of any cause thereof;—yet he suddenly shrinks away from something. In other positions, similar sensitive apprehensions may and do occur to every one. A person, for instance, may be walking in his garden, or on his premises, at dusk, when he is suddenly confronted with an individual, who may be there for no good purpose, neither expecting to see the other. Both are what is called *dumb-foundered;* and so unexpected is the meeting, that reason and instinct are suddenly arrested in both. Motion also is at fault.

The eye alone, of all the senses, is combined with that of a bodily sensation. The first effect over, instinct is roused before reason; though reason soon follows it, and motion next succeeds. Then some of the others, or their subordinates, quickly follow, and regulate the conduct of both. Sensation may also betray a person, who, in the most hilarious company, and most thoroughly off his guard, sees the face of some one, who may have been watching him, suddenly appear. His eye now dilates; he stops even in the middle of a word. Instinct and reason are both arrested; and until they return, however momentary these suppressed actions may be,—that is enough. Instinct to escape danger, and reasoning how to do it, are quickly followed by hearing and touch, nay, even by the doubling of the fist or grasping any weapon of defence. Hence is it that, however divisible sensation may be, it is of itself a perfect bodily sense.

Now, if we add the four senses last mentioned to the ordinarily recognised five, and make *nine* for only argument's sake, whether admitted or not, and not mind the rules of the Schools, —for these have nothing to do with the matter,—we shall find that we can divide them into three groups of three each. Thus sight, taste, and smell may be united, as more directly influencing, aiding, and assisting each other, than by combination with any of the other senses. Again, hearing, touch, and motion seem to offer another union, as depending more on each other than by union with any of the former; while reason, instinct, and sensation evidently blend better than any of the two previous sets as a third triad. But mark,—any two of the whole nine may be taken together; but bring any third in with them, and less harmony appears to exist than in the triads that I have mentioned. Many instances occur, as I have before explained, where any one sense being acted on, those that assimilate follow according to the things to be appreciated or combined by their united action. I do not classify speech here, as one of the senses; because the various sounds of animals are the result of their instinct, just as speech is of the reason of man.

The attributes of the senses, their laws and harmony, and their influences on the moral and physical condition of man, form a subject so extensive, yet so full of interest, that they cannot be more than touched upon in a work like this. The million require to be led, rather than forced, to think; to have mental food put before them, to dress to their own palates and tastes. A slight view, indeed, often prompts persons to see and investigate, more than the unfolding of a whole prospect. Imagination loves rather to figure its own beauties and creations, to make use of its own powers from just sufficient elements, than to have nothing left for it to do owing to excess of development. The use, care, and cultivation of the senses in all their integrity and due gratification, are incidental to the highest character of civilisation. The low abuse of them shows a depravity, which, if persisted in, would soon convert civilisation into barbarism.

# CHAPTER XIII.

## SUDDEN ACCIDENTS AND SEIZURES: FRACTURES AND DISLOCATIONS.

Coolness and self-possession recommended in cases of accidents or seizures—Directions—Fainting—Epilepsy—Convulsions—Paralysis and apoplexy; how to be treated—Bleeding, where recommended—Calomel in apoplexy condemned—Diet for convalescents—Suffocation by swallowing down the windpipe—Illustration by Mr. Brunel's case—Ruptures of blood-vessels; their philosophy and treatment—Bleedings at the nose and vomitings of blood—Treatment of dislocations before the surgeon's arrival—Sprains—Dislocations of shoulder, knee-joint, jaws, &c.—Fractures: simple directions for reducing them, and for general as well as local treatment—General conclusions.

Nothing is so alarming to unprofessional persons, as any sudden attacks of fits, seizures, or sudden accidents. They drive away all presence of mind, in whatever company they occur. Bells are rung violently, bell-ropes pulled down, chairs and tables are overturned;—everybody seems to be taken with a sudden fancy for running in every possible direction:—both ideas and bodies bump against each other. Nobody seems to know what to do; all is dismay, all "discord," or "harmony not understood;" and, before anything is done after all this confusion, a person may have time to recover from a simple fainting fit, and, bring all to their senses by plaintively asking "what's the matter?" Now this is just the point to which I would call your attention.

A little swooning or fainting is no great matter, however alarming it may appear. In whichever sex it occurs, let the patient be immediately placed in the recumbent position—the floor being quite as good as a sofa or a bed, safer indeed in unprofessional hands; because there is no danger of falling off it. If it happens to a gentleman, loosen his cravat, shirt-collar, and braces, and give free play to the respiratory organs; if to a lady, and her stays be too tight, loosen them :—if not, let her be quiet. In both cases, apply hartshorn or smelling-salts to the nose; or simply sprinkle a little water on the face. The *completely recumbent position* will soon by itself restore the circulation, as will be evinced by singing in the ears, and a sigh or two; but, above all, let there be fresh air, and not too many people crowding round the sufferer; for, as the prince of our dramatic poets says—

> So play the foolish throngs with one that swoons;—
> Come all to help him, and so stop the air,
> By which he should revive.

These are the simple means of acting—giving ease to the respiratory organs, allowing all possible access of fresh air, and the administration of a volatile alkali to create nervous action. Nevertheless, the common practice is, to keep a person in the sitting position in a chair, or on the ground, supported by kind officiousness;—when, notwithstanding many of the above appliances, constant faintings recur one after another from this very cause,—while, on the other hand, a perfectly recumbent position and free air would at once restore the circulation.

Any little indigestion, or any delicate state of body, any little start or noise from nervous debility, any sudden news, overheated or close rooms, or the sight of blood or small wounds, may cause fainting or swooning. Sometimes a vertigo, or swimming of the head, occurs and causes fainting; all of which denotes a departure from the law of health in the individual attacked. In fits, such as epilepsy, with foaming at the mouth, the recumbent position with the head a little raised should be adopted. In convulsions the same is the case; and this more frequently occurs with children. At all events give free play to the lungs, and notice the temperature of the body; for excess of heat at one part and deficiency at another are often a fruitful cause of these sudden ailments. Restore the balance of heat, then, as directed under this head.

Anything that is to be given to the patient in a state of unconsciousness should be done in the following simple way.

Place the forefinger between the lips; pull the cheek a little aside, and pour whatever you are about to give in a fluid state between the cheek and the teeth. This liquid will run down behind the back teeth, and lodge upon the gullet. The patient must, as a matter of course, make an effort to swallow; because he instinctively wants to breathe, and then the object is accomplished by a simple mechanical action. It is seldom possible to get anything into the front of the mouth, as the teeth are closely shut.

In the more violent attacks of paralysis, or paralytic stroke, or apoplexy, much evil arises from too much haste. These attacks are so near akin, that, whilst an apoplexy may resolve itself into paralysis, a direct paralysis is never *unattended* with apoplexy. Tes e cases, happening mostly to the adult and middle age, should be most thoughtfully treated. We will imagine a person of a full habit of body with a full meal on a cold day being suddenly seized with apoplexy. The lower extremities are cold, and excess of heat is crowding on the stomach and brain. What is usually done? If he can be removed, he is taken to a doctor's or a chemist's; or if this cannot be done, he remains where he is, and the doctor is sent for:—the patient's coat is taken off, his arm tied up, and *an attempt* made to bleed him, though in vain; for very little blood comes. The jugular vein is opened, or the temporal artery tried; but with the same want of success. A certain amount of calomel is put upon his tongue, according to the urgency of the case or boldness of the practitioner. Alas! all this is time lost; for if the patient recovers, it is never more than partially; and if it be purely a case of apoplexy, he is sure to have paralysis, as a consequence of this treatment; because *calomel* or *mercury* tends to *albuminise the blood*, which is quite thick enough already.

A far more judicious plan, in my opinion, is, at the outset to give one or two table-spoonfuls of antimonial wine in the way above described, and get the patient into bed as quickly as possible; apply hot-water bottles to the feet, and hot flannels to all the cold parts of the body, raising the head slightly, and by these means to get up a *reaction* with the least possible delay.

When a regular circulation has been obtained by these means, profuse perspiration sets in, accompanied by an action on the stomach, as a matter of course, from the antimonial wine; and vomiting clears that organ. After this first action of vomiting, give plenty of warm water, and encourage it; as by this time the long-wished-for mental reaction is taking place.

The veins, if the person be plethoric, will now begin to swell; and then is the time to tie his arm up, and you will get as much blood as you want:—neither be afraid of taking it, if it be actually necessary, till fainting ensues; and gradually raise him up for this purpose.

Here, then, two important actions have been well, efficiently, and bravely performed. The stomach has been cleared, and the excess of circulation reduced to relieve all pressure on any and every organ and part of the body. As soon as the fainting is over and reaction again takes place, you will find, by looking at the tongue, that it is coated,—the system being in one of its most acid conditions. This indicates your treatment: give him a dose composed of half a drachm or a drachm of carbonate of soda, and some twenty drops each of sal-volatile and sweet spirits of nitre, and half a drachm of antimonial wine with sufficient water, making about three table-spoonfuls, and wait awhile. If the pulse gets up, take more blood; but should it not, and you have been bold enough to take sufficient at first (which you should try to do), let well alone, and continue the medicine every four hours, keeping up the heat of the body generally. You may thus perhaps enjoy the gratification of seeing your friend up at the end of a few days with no paralysis, and only a little shaken from the violence of the attack.

Sudden apoplectic seizures treated in this way may not always require blood-letting; for it is only in very plethoric persons that this is absolutely needed. Beware, then, of doing anything unnecessary; and above all, never use that horrid calomel, which, when once given, remains in the system, operating on every gland and lining membrane of the body, causing immense irritation and prostration, sufficient indeed to prevent all healthy reaction. The patient salivated, with his mouth sore, can take nothing, and a profuse and continued action takes place in the bowels which you can neither mitigate nor stop. He is powerless, can do nothing for himself, and is paralysed for ever down one side. Once more—never attempt bleeding in paralysis or apoplexy, *until you have first restored the circulation*, and got a reaction; after which you have a fair field to do as you like. What you do,—do with judgment, thought, reason, science, and philosophy. You may thus not only save a valuable life, but restore that life to its duties and to society.

Even in elderly people and those not plethoric, owing to poor living, mental anxiety, and irregular circulation, you may find paralytic seizures; in such cases adopt my plan, and get up your reactions quickly. You may not have to bleed, but the reverse —that is, to feed up well on all nourishing diet,—freshly cooked meats, not boiled ones or *pernicious mutton broth*;—and though you may find all one side paralysed, you may see it gradually restored. I am speaking practically, and know these things well:—therefore, think for yourselves; for, should you be obliged to act independently of any medical man,—as in our remote villages, in the colonies and in foreign countries,—you may be able to do so boldly, and at the same time judiciously, as well as with the most successful results.

In short-necked, stout people, those whom you may calculate upon as subjects for apoplexy at any time, I have always found them to have veins of small calibre. They are generally sleek, soft, silky-skinned, short and stout persons, who will never yield blood, except you get it at a boiling temperature; which is, in fact, the state of the reaction pointed out.

You may not unfrequently see a person eating, and probably talking at the same time; and a piece of food, perhaps, may *go the wrong way*, as it is vulgarly called;—that is, instead of going into the gullet, it will get at the top of the windpipe, and immediately cause a tremendous choking and coughing, which of course releases it, and after a minute or two, all is right again. But suppose it does not, and the unfortunate person coughs till black in the face, and every one fears he will be suffocated: —direct him to be laid on a sofa or some chairs, with the head down over the side; when the relief will come very quickly by this mechanical position, and the offending cause be coughed up.

A curious case occurred to Mr. Brunel, the celebrated railroad engineer, who, to amuse a child, tossed a half-sovereign piece in the air, and caught it in his mouth; but it went further than he intended, got into his windpipe, and so down into one of its divisions, and blocked up the air from that lung. All possible means were devised, all schemes practised for him, that science could suggest; but Mr. Brunel was a mechanic. So he constructed a table which could be reversed very suddenly; and on this he had himself well secured. In this position the table was suddenly turned up, sending his heels in the air and his head downwards:—the half-sovereign was by these means jerked up the windpipe into his mouth.

You can now understand, why a person should lie upon a surface raised from the ground, in order that the head should be very depressed to assist the mechanical action of coughing; because anything sticking in the gullet can be got rid of upwards or downwards by the muscular action of that channel; while the windpipe, on the other hand, consisting of numerous cartilaginous rings, has no such muscular power, and therefore wants the mechanical position to effect this object. Tossing nuts or bonbons in the air to be caught in the mouth to amuse children, is not only very childish in grown-up people, but may lead to a fatal termination.

There is another form of seizure, perhaps more alarming than any other;—and that is, from the rupture of a blood-vessel, when a person may suddenly vomit a large quantity of blood, sometimes very florid and fluid, at other times very black and coagulated. He turns very pale, becomes faint, and has all the appearance of a dying man. I have endeavoured to illustrate in other places the difference between engorgement of vessels and congestive actions of secretions, such as of the phlegm on mucous membranes, wherever they may be situated, or congestions of organs, and congestions of blood in the veins. All these should be considered as quite distinct from engorgements of vessels, which I would confine to the arteries wherever situated. Persons will frequently spit blood, and no harm come of it:—in fact, it is a relief to the part whence this blood arises. The rupture of a congeries of small vessels will often be a beneficial action,—whether they be situated in the throat, lungs, or along the alimentary canal. Engorgement having taken place beyond the limit of endurance for the due performance of functions at that particular part, Nature then steps in and effects a cure in her own beautiful way.

When once, moreover, a part becomes peccant or diseased, a recurrence takes place of the affection of the same part from usage or habit. Young people when growing will thus be subject to sudden bleedings of the nose, often occurring periodically. This may arise from simple engorgement of small clusters of arteries, or from congestions of small veins. If it be the former, then the blood will be very red and florid; if the latter, dark and black-looking. As soon as the parts have been relieved, the bleeding will stop of itself, and there will be an end of the evil. Antecedent to the attack,—some heaviness, or dulness, or inertness has occurred; but this is symptomatic chiefly of congestions in the veins.

When the forehead or temporal headaches occur, and persons cannot endure either light or noise, these symptoms indicate engorgement of the arteries. All natural relief is beneficial; and there is nothing that can at all equal it in relieving the actual parts, where these engorgements or congestions occur. Now Art cannot get at these parts. If art bleeds, or leeches, art only acts derivatively, on the principle that by drawing some of the blood away, according to the law of fluids, distinct elements will come into, and take the place of the blood that is removed. This is a very fair argument; but there are certain unruly actions in the system, which seem to have a way of their own, and will neither be coaxed nor induced to enter into our views or obey our commands; nor will they be remedied, except in their own way. I know from experience, that Nature will often act in a forcible manner, and eject blood from different parts of the body through the ruptures of vessels, to the great relief of the whole system, when art dares neither to leech, bleed, nor cup.

We may rest assured, then, that in young persons, especially growing ones—either boys or girls, periodical bleedings of the nose are natural proceedings, more beneficial to their health, morally or physically, than the reverse, unless carried to too great an extreme; inasmuch as they are fluxes or excesses of the self-dependent elements of the body, that are summarily expelled for wise ends. Care, however, should be taken, that they do not lower the power of the system, so as to cause an injury; and should they do so, that it be replaced by proper elements of nutrition, according to the character and state of the individual. In others, not only will their systems bear these periodical natural bleedings; but art is even called upon to keep the system low besides. So much, then, for bleedings of the nose.

If the general public can rationally look upon these actions without much horror or alarm, why may not an equal composure be shown, when a person suddenly vomits blood? The sufferer, indeed, may not lose more by this action than by the nose; but, inasmuch as the disposition is rarer and the quantity is suddenly greater, you are all so much the more frightened out of propriety and self-possession. When this occurs, loosen the patient's neckcloth, if of the male sex, and lay him down; see whether his lower extremities are cold, and if so, be assured he has more heat at one part than another—that it is irregularly disposed about the body. Equalise it, therefore, by the application of heat, and give him a little cold or iced water to drink; get him into the horizontal position, and thus mechanically regulate his circulation. A little acid drink—vinegar and water, if you have nothing better at hand,—sucking a lemon, or drinking the juice squeezed into a spoon,—or else a tea-spoonful or two of dilute sulphuric acid in half a tumbler of water, taken by the table-spoonful every half-hour or hour;—all these will greatly assuage these evils, and the effects will go off, whether the causes originated from rupture of blood-vessels in the lungs, stomach, or other parts.

School your minds, in short, to think coolly and with presence of mind on all these useful points; and, without the necessity of studying medicine, you will be able to exhibit your usefulness at very important junctures. Nevertheless, whenever such cases occur beyond your simple powers to do good on emergencies, never trifle with the life of a fellow-creature, nor assume a responsibility, which a too-limited knowledge does not justify; but send for a scientific man wherever he is to be found. Yet, whatever you are suddenly called upon to do in his absence, let me observe and strongly impress on you, do it with thought and judgment.

You may, perchance, be called on to try your powers upon a dislocation or the setting of a broken bone. Dislocations may occur wherever there are joints; but the most common are those of the shoulders, wrists, ankles, and fingers; and after these, of the thigh-bones from the hip. Hunters have said, that such displacements will happen to the neck from falls, and no doubt they do without breaking it; and a good strong fellow will place his two feet on a man's shoulders, and pull away at his head to get his neck-bones straight. At all events, dislocations are always to be pulled in. Now, without being anatomists, you may with good sense and judgment reduce a dislocation. It only requires thought and a little presence of mind. Whatever may occur, off with the clothes and look attentively at the part injured; compare the limb with its opposite; look at your own, right for right or left for left, whichever it may be, or compare the injured limb of the patient with its opposite one, and see if there is any difference, and what it is.

If a finger is dislocated, you will find it oddly twisted. Grasp it with one hand, and hold the wrist firmly with the other, giving it, not a jerking, but a good strong, continued pull, and no doubt you will be pleased to have pulled it into the right place. If an ankle is dislocated, and the foot turns outwards or inwards, you will see the difference by comparing it with the other. Get some one to hold the leg of the patient while he is lying down, and with both hands pull it in;—and pull till it is in, lustily and with a will, before any swelling arises, and you have time to see if it is like the other. If the ankle is sprained only, you will find the foot straight; and on an early inspection you can move the foot up and down,—which you could not do, if it were dislocated. In dislocations of the wrists, you will see them twisted the same as the ankle, and very different to a sprain. Get some one to hold the arm, and seize the hand all round above the thumb, and pull it in.

In dislocations of the shoulder, strip the sufferer to the waist and look steadily at both limbs. If you find one arm lower than the other, and you cannot raise it at right angles from the body, and see moreover a hollow at the top of the shoulder, the ball of the arm-bone may then be said to be in the armpit. Now try your skill; lay the patient flat on his back and get some one to press down the opposite shoulder, —as that is instinctively raised up, while you are pulling at the other arm. If, for instance, the left arm be dislocated in this way, take off your left boot, sit on the floor and place your heel firmly in the arm-pit upon the head of the bone; and while your friend pushes the opposite shoulder, you pull at the arm and push up with your heel, and in will go the bone. If you cannot get a sufficiently firm grasp at the arm, tie a jack-towel round it above the elbow in such a way, that it cannot slip, but without being too tight, and pull at this. When this is done, get him up and move the arm at right angles to the body upwards; then bring it forwards, then outwards, and rotate it. You will find that when the bone is dislocated or out of joint, there will be much excruciating and gnawing pain, but when it is really in, all pain ceases directly; and the patient will be ready to knock you down with joy, as a little Welchman once nearly served me.

In dislocations of the thigh-bone, which are generally upwards, so that the limb at fault is shorter than the other, lay the patient down and get a friend to hold him;—which done, tie a jack-towel round the thigh and pull it in. This sometimes requires great strength, and you need something to plant your own feet against to give you additional power. Think, however, on all these things, and how you can best get this fulcrum; compare limb with limb, and on an emergency you will not require to be a great anatomist or a real doctor to be of service to a fellow-creature.

Dislocations of the knee-joint are rare; but should you see one, let the patient be laid upon his back, and well held round the waist; then fix your towel on the leg and pull it in. In fact, for the detection and reduction of all dislocations, you need only to have a mechanical eye and presence of mind, together with a hearty good will and exhibition of ordinary strength, in order to be of essential use to your fellow-creatures.

The lower jaw-bone, though rarely, is yet sometimes liable to be dislocated;—as, for instance, by a blow from behind passing the neck and striking its angle; or a person by yawning, and being excited to laughter at the same moment, may get a spontaneous dislocation of that part. This will be immediately detected by the under-teeth projecting beyond the upper, and by an incapacity to speak clearly, or move the jaw. The plan to be adopted in such cases is to let the patient sit on the floor, and place your two thumbs as far back as you can upon each side of the jaw within the mouth, pressing it down as forcibly as you can; and when you find it yielding, then press the chin in front with the heels of the hands. If you apprehend that the dislocation is being reduced, withdraw your thumbs quickly, or you will get them pinched. Without apparently knowing the reason, you may have observed nurses gently pressing the under-jaw of infants, when they yawn. This is done to prevent dislocation; for the angle of an infant's jaw is very shallow; and though it may be dislocated, it goes back again very quickly, but this should always be prevented if possible; whereas the jaw in the adult forms a much greater angle, and unless it be set very soon after being dislocated, it is not quite so easily done afterwards, owing to some inflammation; and this may be said of all dislocations, which should be set as early as possible.

As to broken bones, these are altogether different matters. Nevertheless, you may be able to manage any simple affair of this kind on an emergency. It may run in your mind, however, that you have no splints or bandages:—no matter, do without them. We have a great number of very fine things for this purpose; but we often do wrongly by trying to do too much, and departing from simplicity. This is the fault of a highly civilised state; and simplicity, I fear, is too simple for the great mind of man in many conditions.

First, look attentively at the limb, and compare it with its uninjured fellow. Supposing it to be an arm-bone broken above the elbow, if the limb appears shorter than the other, no doubt the bones are overlapping. You must then pull them straight; and when brought to the same length as the other limb, hold it there for the present. When you have got the patient to bed, get a piece of millboard, or the cover of an old book, if you have nothing better, of an equal length with the joint from the shoulder to the elbow, and bend it to fit the back part, not to come all round, however,—but only about three parts round. Then make a little cushion of any rags or wadding to fit in this, that it may be soft, though firm to the limb. Get also another little pad for the front part; and when these are put on, get two or three pieces of tape and tie each once round,—one in the centre,—and the others at the ends,—so that, if the limb swells too much, they can be loosened or tightened again at pleasure,—nay, if need be, they can all be undone, and the ends of the tape laid down, so that by taking off the upper pad you can see how the limb goes on, and if well, tie it up again.

If a fracture occurs to the fore-arm, as there are two bones there, one may be broken, and the other not. The limb will then have its proper length from the one unbroken bone keeping it so. All you have to do in that case is to rest it on a small pillow, tie it round outside with two or three pieces of tape as before, and keep it on a slightly inclined plane, the hand being the highest part. At the end of a week, it may be rolled up in a bandage saturated with gum-water of tolerable strength beginning from the wrist. This should be a roller-bandage about three or four yards long and two inches wide, with neither selvage nor hem. Roll the bandage up, and then gradually unroll it into the gum-water or some well-made starch. When well saturated, roll it up again. Then begin winding it round and round the arm, commencing at the wrist, tolerably, but not too tightly, up and down, until it is firmly fixed. When the bandage dries, it will fit like a board, and may be allowed to remain on a month, until the bone is thoroughly healed. When required to be removed, immerse it in warm water, and take off layer after layer.

Simple fracture of one bone of the leg between the knee and the ankle may be served in the same way, merely by laying the leg upon a pillow and tying the pillow outside with tape as above directed. The limb will then occasionally get air, and should it swell, is not unnecessarily or injuriously pressed upon or covered up with cumbrous splints. As soon as all inflammatory action has ceased, apply the starch or gum bandage, though of a longer length. Should the bone at the point of the elbow be broken, keep the arm stretched out straight; for if it be kept bent, the muscles above and below will pull two ways and keep the bone broken.

Should both bones of the leg be broken and they overlap, they require to be pulled in—care, however, being taken that you get the same length from the knee to the ankle in the one as you have in the other. I know no better splint to rest the leg on than a pillow,—tape-strings being placed outside, so that should the leg swell they can be loosened. You need never fear that the patient will run away; for he has no power of motion, and certainly nothing is so bad as tight splints. A man may pass through the world as a good surgeon, and yet after all be no mechanic; while, on the other hand, a good mechanic may be a better bone-setter than one who is reputed a clever surgeon; for this department of surgery is essentially mechanical, and requires for its due performance no small amount of mechanical talent.

In fractured thigh-bones you should flex the knee a little, and put a pillow under it to fill the hollow, and treat it the same as you would the fractured arm above the elbow. All these instructions, I need scarcely say, are for emergencies, premising that no medical man is at hand. If, however, one can be had, don't trifle with the limbs of others, but send for him at once.

With respect to the effect of falls upon the body, a collarbone or the ribs may be broken. In such cases, neither you nor any one else can set them. All you have to do is to keep your patient quiet; and the best way of effecting this is by means of a roller tightly wound round the body. As the ribs are largely concerned in all the actions of breathing; as inspiration has a tendency to expand and expiration to contract them, and these actions give considerable pain, your object must be to diminish this action and lessen the quantity of air going into the lungs by limiting the expansibility of the ribs. Get a yard of flannel then;—divide it into four, and tear it in strips; sew these altogether at their ends and make a roller, which you may then gradually unroll round the body, making it tolerably tight; and let the patient have perfect rest in bed. Time, however, is required in this, as in all other reparations of the body, for Nature to heal and restore these broken bones. An ignorant fellow who gallops after the hounds thinks he is going to catch the fox, while the true huntsman knows that only the dogs can do that. So it is with us. All that art is called upon to do is to be Nature's handmaid, to set and place things in order, for her to do all the rest. You may find, perhaps, a little knowledge of all these matters a most valuable acquisition.

In all dislocations and fractures many disturbances may take place in the body. The shock of an accident, the pain, the state of the system at the time, and many other things will upset it. Look at the tongue and examine its condition. Here a little medical knowledge should be mixed with your surgical skill. Should the tongue be white and furred, correct this by alkaline treatment; and, on the other hand, should the tongue get dry and brown, the acid treatment is called for. Use, therefore, one or the other, as the case may be, or both alternately, to keep up the balance of power in accordance with the law of health that I have elsewhere propounded. Meanwhile, give support or withhold it,—just as you find the system requires more or less support, or a little starving, should there be fever or inflammation.

Whilst these papers were being written, I was called to see a young fellow, a bricklayer, who fell through the flooring of a new house. He passed through the joists of the next floor on to those of the floor beneath, and broke one of these joists which, as all know, are placed endways. These joists were about four inches wide and nine inches thick; he fell upon his ribs and actually broke one of these joists, and there he remained until he was removed. Now, one would have supposed that the human body would have been broken to pieces; but no, that is too firmly knit together. Not a bone was broken. Nevertheless, he was fearfully shaken and bruised. Now came into play the various directions herein given. First for the bruise. Hot flannel fomentations were carried on for twenty-four hours, but no medicine given, because the reaction was waited for. On its appearance the patient showed a very foul, white, furred tongue:—the alkalis were given with a slight anodyne of henbane. He became thirsty; the bitter element or gentian was added to allay this.

At the end of the third day there was great tenderness of the whole abdomen; and round the navel a circular bruise showed itself, accompanied with the greatest tenderness on touch. Peritonitis was apparent, or inflammation of the membrane external to the bowels and lining the internal walls of the abdomen,—and the tongue became dry and hard. The simple treatment of acids and anodynes with bitters being continued for thirty-six hours checked this;—after which time the tongue again became moist, when the alkalis were given; and whenever during the twenty-four hours his tongue became dry or moist, his father, a poor man, who sat up with him, gave him his alkaline or acid medicine alternately as required;—thus keeping the system in accordance with the law of health, or proper balance of power.

At the end of the sixth day he no longer required the acid medicines. His abdomen got soft; and on pressure a crackling crepitation was felt under the hand, as well as heard. On the ninth day he got up;—he did well, but was unable to resume work for three weeks afterwards, though my own attendance nominally ceased after the ninth day. Here was a case, threatening a most alarming inflammation of a serous membrane, kept under control by unerring laws. In fact, had it not been so, the received doctrine—plenty of calomel and opium, the vaunted sheet-anchors in such cases—would have been resorted to, and been both as needless as injurious.

Falls from horses, especially in the hunting-field, are often attended with danger, and have lately been very fatal. The whole body, owing to the velocity of the pace, is violently shaken and bruised;—and though the head may come first to the ground, it does not follow that a concussion of the brain will be a certain result;—whereas, concussion of that organ may take place, on the other hand, even when the head has not received the force of the fall. The effects of these falls, even where no bones are broken, are frequently very serious, and develop injuries of internal organs one after another, which call for very rapid changes of treatment. Thus the tongue, for instance, may exhibit symptoms of general congestion, and be much furred and moist,—yet suddenly change from this state, and become dry and brown.

It matters not what organ, or organs, or parts are affected, or what part is most injured;—the alkaline medicines will do good in the first stage, and the bitters added thereto will relieve the thirst; but if the tongue assumes a dry and hard aspect, instant resort must be had to the acid-medicines. If this is not done, twenty-four hours will develop an inflammation of some of the serous membranes, which will so rapidly increase as to defy all remedies. If the above well-marked symptoms, however, be recognised at an incipient stage of the disease, it may be checked; and life will be saved. It matters not, where the congestive or where the inflammatory actions occur—whether in the head, chest, or abdomen;—the tongue will prove itself a safe guide in the administration of remedies:—and as all medicines must go through the stomach, and their properties be distributed by that organ, it is of importance to give the right medicine at once; and so long as the same symptoms continue, persist in it undoubtingly:—for assuredly, correction and prevention are the true and legitimate ends of all medication.

In fine, if by certain modes of treatment and following certain rules, the dangerous use of calomel or mercury can be avoided, it should be done. Above all, addressing myself to the non-scientific,—wherever there be accidents, keep a presence of mind and coolness of judgment; for thus only will you be enabled to serve your fellow-creatures in the hour of need. If you but attend to the few precepts I have given, you will be astonished how much you will be able to effect.

# CHAPTER XIV.

## CUTS, WOUNDS, AND LACERATIONS.

The value of a competent acquaintance with domestic surgery, in case of falls, accidents, blows, wounds, &c.—Practices of artisans and artificers for healing their wounds—General instructions for the treatment of cuts and wounds—Superficial wounds; deep wounds: the treatment of each—Directions about strapping—Cut or incised wounds, whether cut along, or across the fibres—Strapping *not* to shut up wounds—Advice in case of scalp-wounds—Injury to arteries: how to be treated—Lacerations and their treatment—Dressings not to be disturbed—Punctured wounds from pointed instruments—Free discharge of pus to be encouraged—Hot poulticing condemned—Nature to be left as much as possible to effect her own cures in her own time—Concluding remarks on diseased joints, and the mode of treating them—General surgical precepts.

Cases are constantly occurring, in which a knowledge of the elements of domestic surgery is rendered indispensable for the diminution of suffering and the prevention of serious and calamitous results. It is unfortunate, however, that such knowledge is by no means equal to the demand, and that among all classes much ignorance prevails.

Accidents are continually happening from falls, blows, the heedless use of cutting instruments or fire-arms, the collision of vehicles, kicks from horses or other cattle, lacerations from machinery, or accidents during railway-travelling;—in fact, wounds, from the simple puncture of a thorn or the sting of a wasp or bee, to the severest lacerations, threatening even life itself. What to do, however, in case of sudden accidents of this kind, few are able to tell. A knowledge of the suffering, that too often ensues from the want of a consistent mode of treating the simplest as well as the more aggravated cuts, wounds, and lacerations, has induced me to devote one chapter to the subject,—in order to furnish the reader with a few plain directions for his guidance under circumstances, with which he knows not how soon he may have to contend.

Every artisan, as is well known, adopts some familiar method peculiar to his trade—some remedy the readiest at hand—for the cuts or wounds that he meets with during his employments. Thus, the carpenter applies shavings dipped in warm glue;—the bricklayer, a dab of mortar;—the blacksmith, iron-filings with a bit of old rag;—the cobbler, a bit of wax or wax-end;—the saddler, a piece of twine well plied with bee's-wax;—the soap-boiler, his tallow or fat;—and the butcher, a piece of skin or stringy tendon;—the gunsmith fills his with resin, and keeps hammering the part with the wooden handle of one of his instruments, till it ceases to bleed;—the baker flours his, as a matter of course;—the glazier stuffs his round with putty, and compresses it;—while the brewer ties his up with a handful of hops, and a nice styptic or astringent it is too. The cotton-spinner applies a stoop of wool;—the linendraper and tailor use wadding or one of the fabrics in which they deal;—the paper-hanger stops his cuts with his paste and paper;—the ostler his with a wisp of straw or hay;—and the sailor with a bit of tow or caulking yarn:—in short, every one of them, in their several callings, has his favourite and common remedy. Not one of them, however, is applied on any philosophic principle: —everything is done in a hurry, without thought, and the universal bungling is shown by lasting disfigurements and ugly scars.

The following instructions will show that in these matters a little time lost at first is well saved afterwards. *First*, as to the treatment of those simple cuts or incised wounds, which by common consent are considered of too small importance to call for the surgeon's interference. If the cut be clean, there is no necessity to be frightened at the flow of blood. The thing to be immediately done is to bring the parts together which the knife has severed, whether it be a clean or jagged cut, so as to get as complete an apposition of them as can be obtained, and then to bind them up with linen; because the blood itself is glutinous and adhesive, as well as healing in its nature, and by congealing about the wound will prevent the damaging contact of the atmospheric air.

The wound, well bound up in this way, should be suffered to remain so for at least forty-eight hours, in order to give time for the union of the severed parts, and stop all bleeding; and, should any small artery be divided, its end be thus plugged up. If the patient should at the end of this time feel easy and comfortable, and not complain of any throbbing or pulsation about the wounded part, it will be best to let it remain undisturbed for twelve or twenty-four hours longer; after which, the linen bandages may be gently removed, care being taken, while so doing, not to open the cut. The part thus laid bare should then be thoroughly cleansed from blood, in order to restore the free circulation in the blood-vessels of the skin in all the surrounding parts. Should the wound incline to open during the cleansing, this must be prevented by pressing the sides gently together with the finger and thumb. If all be now going on right, fresh rags may be bound round,—allowed to remain for twenty-four hours or more, and, if requisite, once more renewed at the expiration of that time. Above all, care should be taken not to open the wound or undo the bindings too soon, in order to gratify a foolish curiosity, inasmuch as such conduct is sure to retard the healing.

For superficial wounds the above treatment will be all that is required, until the injury is repaired; but if the wound is deep, it must be borne in mind, that every portion of the deep-seated structure that is injured will have to be renewed, which cannot happen without the discharge of the injured portion in the shape of pus or purulent matter. In such a case, guard against strapping or binding-up the wound, so as to obstruct this discharge; inasmuch as you thereby run the risk of converting a trifling injury into a painful and serious one, through preventing all outlet for its escape, the result being that it will then burrow and spread along the cellular tissue, often causing a worse state of things than the original injury. This is what I call chemists' and druggists' surgery; for these worthies receive in most of our large provincial towns the great majority of such cases, and think they cannot apply plaister enough; indeed, one would suppose that they repaid themselves for the job by the quantity they used for the purpose.

The edges of a wound of this character should be held together by strips of plaister in such a way as that some small portions of the incision may be left uncovered, in order to allow the escape of pus. After this has wholly ceased to flow, the strapping may be renewed as often as necessary, changing its position each time; for the part left uncovered heals first, and each space then has an opportunity in its turn of doing the same. If you would avoid the bungling surgery spoken of above, and make an approach to scientific treatment in dressing wounds, it is only necessary to recollect, that a good plan is as readily learnt and comprehended at first as a bad one,—the former having the additional advantage of being understood, while the latter never can.

In the treatment of cut or incised wounds of all kinds, much depends on the circumstances of the cut being in a line with the fibres of the muscles, or in a transverse direction. When they occur in a line with the muscular fibres, their edges can be readily brought together by simple narrow strips of plaister laid on at intervals. Thus, when wounds or cuts occur along the forehead or eyebrows, they are parallel with the muscular fibres: the same happens when they occur perpendicularly down the cheeks; or along the lips, down the fingers, the legs, the thighs, &c. But suppose an incision is made perpendicularly down the eyebrow or forehead, or dividing the lips, or across the nose or cheeks horizontally, or across the thigh or leg—in these cases the fibres of the muscles are severed transversely, and the antagonistic muscles pull the wound open and make it gape.

A simple plan is now only to be followed. Wait and see exactly how things stand, and when fully satisfied, then exercise a little judgment and presence of mind. If the cut be a large one in the line of the fibres of the muscles, get the edges together, and let them be held so. Then cut your strapping-plaister into small strips six or eight inches long, and a quarter or a third of an inch wide. Place a jug of hot water by your side, with a smooth outside-surface, to which apply the back of your plaister to warm it. Then fix one end of your plaister four inches from the wound, passing over the centre of it to four inches at least beyond it, for the purpose of giving it a good holding, so that it cannot be moved from its position by the motions of the body. A second piece may be applied above and below this in the same manner, with intervals between. Everything is here presented to view; and there is no need for making a Maltese cross of a number of small bits, which the first exudation will throw entirely off, leaving an opening never afterwards to be brought together, and in any case a white patch for life, as a memorial of the accident and unscientific usage. Afterwards put a pledget of lint or rag over it, which may be removed easily for the purpose of seeing how all goes on.

As the interstices between the plaister heal more quickly than the parts underneath, as soon as it can be safely done, remove one of these plaisters, and apply another in a different place; by which means you will ultimately get a simple white line, scarcely discernible, and consequently no disfigurement whatever. Rather more care must be used, however, when the cut has divided the muscles across, and each part pulls it a different way. In this case your strips of plaister must be cut longer, so as to grasp a larger amount of surface on both sides. If the cut is across the nose, for instance, carry a strip of plaister from the upper lip over the tip of the nose, up the forehead, and even somewhat over the scalp; for you have here some strong antagonistic muscles to contend against, which will sometimes tear away the surgeon's suture or stitch, if he has sewn it up. The same must be done with wounds down the forehead.

In all cases, then, *abjure little bits of plaister and shutting wounds entirely up*. A cut with a hatchet between the thumb and forefinger will render it necessary to apply a strip of plaister commencing at the back of the hand, and carrying it into the palm across the wound, over the back of the hand and into the palm again, so that no muscular movement of the hand may cause it to be disarranged. One strip will here generally suffice. A cut down the forehead will require a bit from temple to temple, or even beyond, crossing the centre of the cut. A cut across the thigh will require plaister of a greater power and much longer length. Let the operation be done then by two pieces—one from the outer to the inner side, and another from the inner to the outer side, crossing in the centre of the cut, each from a foot to eighteen inches long, and an inch wide. These illustrations are given to show you the principle to be adopted, which your own intelligence will soon readily comprehend.

In all these cases, if the wound be only superficial, tolerably good cures may be effected by strapping; but, if the incisions are deep and across the fibres of muscles, it will be necessary for the surgeon to sew them up,—as otherwise the divided fibres, pulling each in a different direction, will give rise to an open wound. This, as I have frequently seen, will not only take a tedious time in healing, but will leave a large unsightly scar, which no good surgeon likes to see; though it too frequently happens that even good surgeons are not good mechanics, or even mechanics at all. According to the extent of the injury, it may be necessary to insert two or three sutures or stitches. The best cures in these cases are invariably the neatest, and the ugly bald scar tells a tale not only of the patient's suffering, but of the bungling mal-adroitness of the surgeon. I am sorry to say that I have seen but too much of such clumsy handling, where, in consequence of the want of a little dexterity or mechanical knowledge of the surgeon, a handsome face has been disfigured for life—and that from the result of a trifling accident. In no case, where the wounds or incisions are in a line with the fibres of muscles, is a suture or stitch required; but in cuts across them, they may be absolutely necessary—as, for instance, across the eyebrow.

In the case of scalp-wounds, extra-precaution has to be used; for in no part of the body is a wound or cut so liable to disturbance, and to spread by the burrowing of pus from unskilful treatment, as in the scalp. In dressing a scalp-wound, the edges must be kept together with the thumb and finger; while the hair is cut close to the head with a pair of scissors, and a sufficient space, cleared to allow of a long strip of plaister across the wound to bring it together. Before applying the plaister, keep the edges closed, and with a sponge and water cleanse the whole of the blood from the hair, and with a comb part it away from the sides of the wound; for nothing is so unclean or unwholesome afterwards, as hair allowed to be matted with gore;—effluvium and even vermin soon arise. Lastly, cleanse the wound itself, drying both it and the surrounding parts with a towel. Cut your strapping not shorter than two or three inches in length, and longer if necessary; and have it of a width only sufficient to cover the centre of the wound.

As scalp-wounds bleed more than most others, and as the blood would be likely to saturate and loosen the strapping, you will be compelled to prevent this by placing over it a thick pledget of lint, and tying it down firmly with a bandage or handkerchief round the head. At the end of forty-eight hours the pledget of lint may be taken away and the wound examined, to see if the healing process is going on well. Cleanse the edges left uncovered by the strip of plaister; and, if necessary, remove that, and put on another, especially if it happen to have slipped during the night. Be very careful to examine, if there be any swelling or puffiness around; for this will inform you, that there is infiltration of blood or matter taking place under the scalp, which must be immediately got away, and the pledget afterwards more firmly and securely pressed.

In some wounds of the scalp a little jet of blood will show, that a small artery has been injured; and this often proves troublesome even in skilful hands. In such a case keep the top of the finger or thumb upon it; clean all the blood from the hair as directed above, and bind down a pledget of lint tightly on the wound, making sure that it is not liable to displacement by restlessness at night. Some days may elapse, before strapping may be safely applied; and when the pledget is removed, it may be found necessary to apply it again, together with some styptic or astringent, such as the tincture of the muriate of iron, or arnica.

In cases where wounds assume a serious aspect, remember, I do not advise them to be entrusted exclusively to domestic treatment; and where a surgeon's attendance can be procured, recourse should be had to him.

Lacerations are among the most common and frequent results of accident; though they are, for the most part, not of a dangerous character. When the flesh is torn, with the skin attached to it, care must be used to bring, as far as possible, all the parts together, to preserve the natural appearance, and all excess of plaistering and strapping must be avoided. A few narrow strips only should be used, and, if well applied, will rarely have to be removed, until the part is well.

Another accident calling for immediate treatment may be the sudden chopping off of the tops or small portions of the fingers or toes. The best thing to be done is to wrap them up in linen rags, renewing them once in twenty-four, thirty-six, or forty-eight hours, according to circumstances. These are cases, which no surgeon can cure; and they must therefore be left to Nature. In all such cases, however, the discharge is great, and when the surgeon's assistance can be had, it should be procured; but when it cannot, the above simple plan is the best that can be followed; at the same time, a soft protecting bread-and-water poultice may be required. If there be no great inflammation, it should be warm; but if the inflammation be great, it should be cold.

In cases of deep wounds, though not extensive, some arteries will generally be cut; and in consequence the bleeding will be profuse. Here you must apply pledgets of lint or linen rags, and keep them on as tight as can be borne, until the arteries are healed;—for if the pledget be removed before they are healed, the bleeding will be renewed as profusely as before. If the bleeding be stopped, however, you should be content with that (for the most skilful surgeon could do no more), and suffer the dressings to remain undisturbed, as long as no ill effect results from them. Interference in such a case is generally mischievous, and will lead in all probability to the injury of the patient and the mortification of the practitioner.

In wounds inflicted with a pointed instrument, the part to the extent penetrated by the weapon is wounded and killed; and when the instrument is withdrawn, the skin closes on the orifice. The effect of such a wound is invariably painful, especially after the lapse of a day or two. The reason is, that a portion of the living structure, having been destroyed, has now to be renewed. As I have already hinted, this renewal cannot take place, unless and until the destroyed portion has resolved itself into another substance called *pus*, or purulent matter, by the conversion of a solid into a fluid mass,—which fluid must come away before the sufferer can be relieved of pain. Now, in punctured wounds, the skin closing over the orifice leaves no convenient vent for the discharge of the pus; and the consequence is usually what is called a *fester*, which comes to a white head, causes excessive pain in the part, and, finally breaking, discharges the noxious matter. After this discharge, the desired repairs and renewal take place, but always in a period of time bearing special reference to the habit of the patient and the condition of his blood. Should the wound at this crisis appear inflamed, and be attended with unusual pain, the error of hot poulticing is to be avoided, and folded linen dipped in cold water applied to the reddened surface.

In small punctured wounds, the best thing the sufferer can do, if he have nerve enough, is to make the punctured wound an *incised* one, by cutting the skin, or at least breaking the outer skin sufficiently to form a vent. In case of a puncture from a poisoned point, or the sting of a venomous insect or reptile, this should be done at once, and a hot poultice applied *before inflammation is set up;* for a wound of this description may be judiciously drawn by heat. In case of a wound from the tooth of a dog—especially if there be a suspicion that the animal is in a rabid state—this precaution should not be neglected. The same means may be had recourse to in healing wounds from the sting of a bee or wasp. It sometimes happens, that the sting of these insects is not felt at the moment; but the effect will not be long delayed, and the pain it produces is not to be mistaken. In such a case, the best treatment is to wet the part and rub it well with stone-blue or indigo-blue; and if inflammation arises, apply rags dipped in cold water, renewing them as often as they become dry or warm. The application of vinegar to stings or gnat-bites is good.

All wounds, punctured or others,—all cuts, incisions, and lacerations, however slight,—demand and should receive instant attention; for, if they be left to themselves, such neglect may lead to the most disagreeable and serious results; and whenever the bodily system is affected by such causes, the first symptoms of indisposition should meet with the promptest attention.

Here the laws of disease will show themselves in the body by the tongue being in a furred state, which some simple alkaline remedies will restore to a healthy appearance, because they will abate the constitutional disturbance, of which the furred tongue is the index. But if the alkaline remedies be withheld, and the disturbance allowed to progress, the operation of the same laws may produce inflammatory action and fever. Such an effect is not uncommon, when it occurs from wounds, burns, scalds, and other injuries to the body; and then a trifling accident is sure to lead to a serious, alarming, and perhaps fatal disease.

I shall conclude this part of my chapter with good advice, the result of much practical experience in surgery; and that is—when everything goes on well, "*Let well alone*." The fault of all persons, patients as well as young surgeons and physicians, is, that they will not do this. They are anxious that their patients should get well quickly, and they often aspire to get them well, before the laws of Nature can possibly have time to repair the damage; and thus they often only retard by their over-zeal and officiousness the very end they desire. This is what I have been in the habit of calling "*interfering surgery*," which is as bad, and often far worse, than any absence of it. Any wounds, small or great, are always worth early attending to. Remember what Mercutio said of his,—

> 'Tis not so deep as a well, nor as wide as a church door; but 'tis enough, 'twill serve; ask for me to-morrow, and you will find me a *grave* man.

I cannot do better, perhaps, than conclude this chapter with a few remarks on diseased joints, which have elicited much skill and thought in the surgical world,—their diseases and treatment being by no means even yet set at rest. This is one of those subjects, indeed, that are always turning up to be ventilated; and no one yet knows the best treatment to be adopted, for this simple reason, that what may be the best *extant*, may yet be far from the truth.

Diseases of joints may be produced from direct exciting causes, such as accidents; or from latent or constitutional causes, arising from no accident whatever. The first division of these is always affected by the latter, and often blended with them. They may be treated, therefore, as a single subject; for when a person recovers quickly from an accident to his joints, there is an end of the matter;—whereas, if it become a chronic disease, then it is constitutional,—the accident having been simply an exciting element in the calculation. There can be no doubt, in the first place, that there is a want of integrity in some of the many parts that make up a joint, as, for instance, in the bone itself, its cartilage, or its covering membrane, or from obstruction of circulation through it—either arterial, venous, or capillary—the excess or deficiency of fluid, called the *synovia*, secreted by its own proper membrane, for its necessary lubrication, vulgarly called "joint oil;"—or else disease may arise from some elementary disturbance of the blood itself, and take up its quarters there, precisely as gout may choose the great toe, and precisely, also, as one organ in the body may contract disease to the relief of all the rest;—so that an outlet for any morbid affection, however small, may be as readily conceived to happen in the complication of a joint, as anywhere else. Why not?

If, as I have before said, the medical profession were to inquire into the philosophy of their treatment of disease, in order really to ascertain its true character, I believe that they would soon come to better conclusions. For instance, if leeches, setons, burnings, issues, blisters, hot poultices, and all these appliances and ends are used, what is their purpose? And if liniments, embrocations, cold lotions, and such like opposite courses are adopted, what is the end in view?

I have seen patients with diseased joints that have been in nearly every hospital in London, and under the care of every surgeon with or without a name, which have baffled them all.

They have been to every quack, and have been hydropathised and shampooed, mesmerised and homœopathised, and have derived no good whatever from any. They will persist in remaining the opprobrium of art. I am not saying this to lead any of my readers to believe that I have cured them;—no such thing. Yet I may say, that too much is frequently done to local symptoms in diseases of this character, and often to the neglect of the more general condition of the body.

If disease of joints occur in the upper extremities, *no aperient medicine will do them any good*:—and if they happen to the lower, *they will get no relief without.* The tongue alone, in these cases, will regulate the form of procedure;—for these affections will often come, when the body is in a highly congested state, and they will come also when it is in an inflammatory condition, *but not so frequently*,—because two distinct inflammations cannot generally exist at the same time. Whatever gives rise to them, the body and its secretions should be the parts most to be attended to; and I thoroughly believe, that the less anything is locally done the better.

Joints are curious parts to trifle with; and I have long since come to this conclusion—NEVER LEECH THEM. This is so false a step, that if they were ever curable, the fact of this having been done would settle the question for ever;—they never will be cured afterwards. They may apparently be made better, which I do not deny; but only a false security has been obtained. The simplest plan is to wrap them up in flannel, and always keep them moist by their own perspiration, when they are not in an inflamed condition; but if inflamed, do the reverse, and apply cold evaporating lotions, until a more chronic state is induced. These, like many diseases of the body, will always constitute the surgeon, as they do the physician, a most useful member of every community.

There is no general plan that I can suggest to the million for their adoption in these cases; though I may tell them that every separate case will require its own peculiar remedy, for this reason;—namely, that the causes which induce the disease are so essentially that of an *Idiosyncrasy*, or peculiarity of constitution in each individual, that nothing short of putting in a personal appearance before the doctor can lead to the suggestion of what is best to be done. Still I maintain, they must be *generally*, rather than *locally*, treated, and the joint, in some cases, ignored altogether,—not even taken into consideration.

Be it understood, I speak upon this, as upon all other subjects, from my own observation alone. That I have cured many, relieved many, and failed in many, is only to have run, perhaps, in the same curricle with my brethren. That they are the most difficult things to cure will remain a fact, I am thoroughly convinced, until a better understanding, more unanimity, and a truer knowledge of the laws that regulate health and disease, become known to the profession.

Let me, therefore, warn all persons against neglecting cuts, wounds, lacerations, or punctures, as deeming them too trifling for consideration. When they are surmounted without injury to the system, the inference is that the general health is in such a state, that Nature herself has restored it without artificial aid. But, when they affect the system, so as to produce constitutional disturbance, they then show that the body has departed from its natural standard of health. This being shown by a coated, loaded, and moist tongue, indicates the use of the alkalis;—the tongue becoming dry with thirst shows a feverish tendency, when the bitters should be added;—but when the tongue becomes dry and brown, with general feverish symptoms, the acids, anodynes, and bitters should be used;—also, that in disturbances from injuries to the upper extremities, purgatives should not be used, while for those affecting the lower, they are both admissible and necessary.

No greater proof than that furnished by the above remarks need be adduced, that surgery and medicine, as arts, are indivisible. In fine, there can be no such anomalies as the distinct surgeon or distinct physician. Nature acts in both capacities; and so must all practitioners.

# CHAPTER XV.

## BLEBS AND BLISTERS FROM GALLS OR BURNS.

Provisions of Nature for the contingencies of injury to the skin—Blisters and blebs: their cause and formation—Blisters from burns: their treatment, broken and unbroken—Blisters, from whatever cause, not to be punctured; and why—Linseed-oil and lime-water for burns or scalds—Flour, cotton, wool, and wadding: their uses and disadvantages—Contraction of skin and joints from scalds and burns—Various modes of treating burns and scalds recommended by the profession; with the author's remarks, and treatment of such cases.

When the hands by any manual work, or the feet from walking, are galled, so that a blister or watery bleb arises, or when a blister is raised by scalding or the direct application of fire or heated substances, the common practice is to puncture them. As surely as this is done, a painful result follows. It is bad enough when this occurs by an accident, which no man can prevent; but to do so designedly is most unphilosophical.

To show how wise Nature is in all she does and in her provision for contingencies, the double skin deserves our admiration. The skin is, as you are aware, the natural external covering of the body as well as outlet for the perspiration, and, being liable to all atmospheric influences, should always be kept clean. It is always, then, under a state of wear and tear, as well as repair. Frequent washing of it is of the highest importance, as it is constantly exerting an absorbing power. Its renovation is always taking place imperceptibly; nor could this be so admirably well conducted, but for the wise provision of a second skin beneath. However closely these two skins may be united, there is a watery fluid always present between them;—as is perfectly clear from the readiness with which a blister is made from a gall, a burn, a scald, or by friction. Either of these will cause a sudden destruction of the vital properties of the upper or outer skin; and a blister may be raised without its being broken or wounded, and this skin become stretched by the fluid underneath.

Now this fluid rests on the second skin,—a structure not subject to the hardening influence of the air, but ready on emergencies to take the place of the upper skin, if that be destroyed. A simple chafing or rubbing-off of any portion of the outer skin by any part of the dress, or from over-walking, or from the saddle in those unaccustomed to horse-exercise, is known to be very tender, and if the abraded part be large, often exceedingly painful. This requires time to harden and become a firm outer covering. But how much more tender is it, when it is suddenly made by a burn or scald which has roused it to a tenfold action,—so that, by being over-excited, it makes and exudes from its surface a large amount of fluid, or else a large blister may be made in the time!

The most painful results ensue, when this blister is cut or broken, and the killed or destroyed skin falls and rests upon it, so as to cause additional pain from the exposure to the atmosphere of so highly excited a surface. Therefore, *never puncture a blister from a gall, a burn, or a scald.* The proper treatment is to keep it as free from air as possible and prevent a breaking of the upper skin; for in so doing the fluid resting on the second skin gives time for it to harden. From the moment that such injury occurs, a process is set up by Nature (who never stops in her laws) to make a new second skin, which shall take the place of that just destroyed; and this being the case, it is clear how much sooner a burn or scald will get well by not having its blister punctured; for by doing this, the second skin becomes destroyed, peels away, and a third skin has to be formed,—Nature having then to make two structures instead of one.

The first point in the treatment of a burn or a scald, then, is to prevent the blister, as far as possible, from being broken. The next step is the immediate application, if possible, of equal proportions of linseed-oil and lime-water, which is an excellent cream-like substance. This should be applied by lint well saturated, the effect being to allay the pain in an incredibly short space of time. This should be continued for the first twenty-four hours at least, or even for a longer time, according to the extent of the burn. When this has been discontinued, flour may be applied by means of the dredger, and for this reason,—that the flour falls softly upon the structure and fills up every part. This is not so necessary, when the blister is not broken; for it can be wrapped up and there kept;—whereas in a broken blister the flour tends to exclude the air, nor should this be dressed oftener than once in twenty-four hours. Supposing the blisters to be broken and a great exudation of fluid to ensue, the flour will absorb it. At intervals of twenty-four hours the crusts so formed should be carefully removed, and fresh flour applied by the dredger every day. The new skin at the edge of the wound will now be seen daily to close in, and will at last close altogether,—often without leaving those bald-looking white surfaces, that are the usual results of a burn.

It may be as well to mention some of the popular modes of treating burns and scalds, in order that you may choose the best and avoid the least philosophical. A child once severely scalded in a cotton-mill was put into a bin of corded cotton, and the little sufferer recovered, when, from the extent of its injuries, it was supposed it could not have survived. This gave the idea, probably, of the application of cotton or wadding to burns. In this case, no doubt, life was saved by the air being shut out from a largely exposed surface; for it is not to be supposed that a child's system could have withstood the air acting on so largely an abraded surface, and on the suddenly exposed terminations of nerves.

To treat a scald or burn, however, when the surfaces are broken, with cotton-fibre or wadding, is not a good practice,—at least, if the surgeon desires to see smooth surfaces, and have the case attended with favourable results. The cotton or wadding is generally ordered to be left for some days upon the burn; but this is injudicious, as the cotton eats into the new and exposed texture of the second skin, and causes an effluvium to arise from the surface,—a proof that it should be removed every twenty-four hours. Now, what is the result of such application? The cotton or wadding is not like flour: it certainly absorbs the fluid and serum poured out; but on its removal it tears away the elements of the new skin, causing frequent and daily bleedings;—besides which, no regularity of healing can take place with the application of cotton or wadding, on account of their fibrous qualities. The wounds, consequently, heal in patches; and then ruts and eminences ensue with furrows, indentations, and ridges, not only unsightly in appearance, but ever afterwards evincing a tendency in the part to contract. Though years may elapse, I have seen badly treated burns and scalds, especially in the neighbourhood of joints, to make the limb contract; and if the burn has been at the side of the neck, the head will be gradually drawn on one side. The fibre of the cotton or wadding, then, is not good for healing surfaces; and even where adopted, it must be used in so fine a state as cannot be obtained readily.

Next comes the hot treatment;—and the application of hot water or poultices, alcohol, spirits of turpentine, brandy, &c.;—then we have the cold treatment, by the application of Goulard-water, wax and oil, vinegar and oily liniments, cold water, and even ice;—again, there is the styptic treatment of alum-water and oxymuriate of mercury; and, lastly, some adopt a sprinkling of powdered chalk. These treatments have all been recommended by various members of the faculty; but they are all based directly or indirectly on one principle;—namely, that the part affected should be exposed as little as possible to the action of the air, and the fresh application, for the same reason, be always ready before the old one is removed. Some have advised puncturing the blister, while others have as strongly reprobated it; and others again would do so only very slightly now and then, to relieve the tension of the skin, if very full. This may answer under peculiar circumstances; but a blister relieves itself by evaporation of its serum through the skin, or by condensation of the fluid.

Nevertheless, however various the modes of treating burns or scalds, you may depend on it, that the best plan is never to puncture the blister, but to apply equal parts of linseed-oil and lime-water for the first twenty-four hours, to relieve pain,—even if the outer skin should not be broken. Next, keep flour constantly and thickly dredged on the burn, removing the crust previously, and carefully excluding the external air. Flour, in short, is the very best, safest, and simplest dressing; and where the fingers and toes are burnt or scalded, great care should be taken to keep them separated by plenty of flour, so that the raw surfaces may not unite; and when joints are implicated, always keep them straight; for if bent, the skin is liable to contract in healing, however carefully the application may be put on.

To sum up:—the great secret is *to keep the parts excluded from the air.* Should burns not have healed well, or even too quickly, so that proud flesh (a common term, meaning excess of growth) arises, and the new skin in consequence not being able to form over this, apply the lunar-caustic, or nitrate of silver. This may give sharp pain to the sufferer for a short time; but it prevents much deformity afterwards. It should be applied, too, every day; for each day a portion of this excess of growth is destroyed, and the wounds then heal rapidly.

I may here remark, that in no instances are the curative efforts by natural means more to be waited for than in galls, burns, scalds, &c. They cannot, more than any vegetating act of Nature, be hurried:—they can be assisted by a perfect understanding of the beautiful laws which Nature adopts in all these reparations; and they can be, as they often are, made worse by false principles and applications which run counter to them. Much, therefore, depends on the healthy or unhealthy state of the body at the time they occur. Under any circumstances, then, if the system evinces a deranged state or a departure from the standard of health which affects all healing processes and produces nervous irritations, attend to the directions recited at the latter part of the previous chapter in order to restore the system to a state of integrity.

# CHAPTER XVI.

## THE USE AND ABUSE OF HOT AND COLD APPLICATIONS TO BRUISES AND ABSCESSES.

Hot and cold applications in domestic surgery—Their uses and abuses distinguished—Cold applications injurious in cases of recent bruises, sprains, and local injuries, which are to be treated by hot fomentations: the reasons why—Cold applications; when useful in such cases—Treatment of bruises with laceration—Hot poulticing pernicious to all suppurating swellings, and why—Boils and carbuncles; their nature and treatment—Festers and whitlows to be treated by cold applications—Liniments injurious to fresh bruises, and all other cases of local inflammation—Horizontal position of patient desirable during local applications—General directions—Conclusions, and closing remarks on diet.

In what may be called the popular and domestic practice of surgery, which is for the most part confined to those trifling cases which the heads of families are wont to take under their own management, as being unnecessary to trouble the doctor with at all, hot and cold applications are remedies in high favour and constant use. Now, this would be all very well, were the true philosophy of such applications properly understood; but, unfortunately, the reverse is very much the case, and instances are continually coming under my notice, in which—owing to ignorance of very simple appliances, a trifling injury, instead of being summarily cured, is nursed and stimulated, until these over-careful nurses make it a *bonâ fide* case for the doctor. With a view, therefore, to the prevention of such disagreeable, painful, and often serious results, I shall endeavour in this chapter to lay down a few plain rules, which will enable the reader to discriminate and determine, when a hot and when a cold application is required.

In all cases of falls, followed by bruises, sudden or violent blows and wrenches, and sprains of the joints, I find the popular remedy to be a cold application,—such as cold water, cold vinegar, or vinegar and brown paper; and, should the face or eyes be injured, a piece of cold raw beef, or the blade of a cold knife, laid upon the part, and so on. Now, mark the effect of the cold on the injured part:—in all these accidents there is a violent disturbance and congestion in the innumerable small blood-vessels of the parts assailed, both veins and arteries, and also in the capillaries, the terminations of the first and the commencements of the second. This is attended, likewise, by severe pain, arising from injury to the nerves of sensation, and a want of motive power in the part; because the nerves of motion are also injured, and have lost their due action on the muscles. Indeed, the whole of the injured part is arrested in its functions,—excepting the nerves of sensation, which are active and tormenting enough. By the application of cold, it is true, the sensibility of these nerves may be temporarily diminished; and this fact no doubt lies at the bottom of the popular practice.

The application of cold in all such cases is after all a mischievous blunder; for by cold the nerves of motion are deadened and kept powerless, the current of the blood along the minute blood-vessels and capillaries is arrested in its course; and thus the wonderful curative power of Nature is brought to a standstill by the case being literally taken out of her hands. She does not consent, however, to this entirely,—inasmuch as the cold applications cannot be continuously sustained; and a reaction will take place, in spite of all efforts to the contrary. The returning warmth, in fact, will restore the arrested circulation, and thus at last a cure will be effected; though it is brought about much later than it otherwise might have been, and leaves, after all the pain has subsided, an unsightly memorial of the wrong and unphilosophical treatment that has been adopted. The reason is this:—the cold having arrested the flow of blood in the part, that fluid has become congealed, and betrays its presence beneath the skin in all the colours of the rainbow, though not quite so pleasant to look upon,—an appearance which frequently lasts for ten days or a fortnight after all pain has ceased.

Now, if in the case of any accident of the above nature, instead of the cold application, a piece of flannel folded several times, dipped in hot water, and slightly wrung out, were laid on the injured part, the result would be far different. By such a process, the circulation would be *assisted*, instead of being arrested; the nerves of motion would recover their power, and resume their action, and the nerves of sensation, so far from being deadened, would be gradually soothed. The flannel, as often as it cools, should be replunged in the hot water, and the application kept up for thirty or forty hours, or even more, if required. At night, too, a flannel of many folds, covered with oilskin or caoutchouc, might be used;—by which means the heat and moisture would be retained for hours. The result of this treatment is, that in the average of cases Nature will soon repair the damage, and there will be little or no discoloration of the skin,—which is a matter of importance, especially if the injury be inflicted on an exposed part. If the case be a violent sprain of the ankle, discoloration will ensue under any treatment, either hot or cold, and may extend up to the calf of the leg, or beyond; but hot applications will produce as rapid a cure as can be looked for, and leave less debility in the joint.

It were only fair to mention here, that when a few weeks have elapsed after a severe sprain, cold applications, by douche or otherwise, will be found undoubtedly beneficial, as they act like a tonic on the parts injured. In injuries from violent blows on the face, the persistent application of sponges charged with hot water will not only take down the swelling from the part, but, if resorted to immediately, and well followed up, will prevent the least trace of the bruise from being discernible even on the following day. This I have repeatedly observed in my own practice.

The reader, however, may inquire:—Supposing the blow or bruise to be accompanied with laceration of the part, and blood to be drawn,—what then? In that case I would say, if the wound be serious, and any blood-vessels of consequence have been injured, recourse must at once be had to the surgeon;—but, should one not be at hand, the best plan to be pursued will be to apply cloths, and at the same time a certain pressure, until you are satisfied that the bleeding has stopped. This acts in two ways;—first, the blood is stanched, and, secondly, the heat from the radiation of the part, which never ceases to perspire, produces that natural warmth which you were prevented from giving artificially.

Should the injury be confined simply to the small superficial vessels, you must still use the hot-water application. A little bleeding, so far from doing any harm, will act usefully in cleansing the wound, and the hot application, by setting up a slight inflammation, will tend to accelerate the healing process. After twelve or twenty four-hours have elapsed from the infliction of the wound, according to the symptoms, the warm application may be discontinued, and cool dressings take their place;—the reason for this being, that as all wounds require some inflammatory action, more or less, according to circumstances, to effect a healthy healing process, the continuance of the hot application may cause an excess in this action,—thus undoubtedly suggesting the use of cold applications in place of the hot previously in use.

Now as to HOT POULTICING. The popular prejudice in favour of this domestic remedy is one of those enigmas that must puzzle even the commonest of common sense, showing that no thought has been bestowed on it; and its use, moreover, is the source of as much needless personal suffering as any prevailing error that could be maintained. In the domestic treatment of boils, festers from punctures, cuts, abrasions, or other sores; whitlows (those painful affections at the roots of the nails); inflammations from the lateral spread of the nails; incipient abscesses, or any other natural indications of suppuration, arising from an ill-conditioned state of the body;—in all these cases, and many others of a similar character, the invariable popular resource is the application of a hot poultice of bread, or linseed-meal, or something yet more stimulating, or placing the part in hot water. All such treatment, however, I pronounce to be as mischievous as it is absurd and unscientific.

Were a doctor to order a patient suffering from a general fever to be placed in an oven and to drink stimulants, we should undoubtedly deem him mad. If such treatment be insane, then, as applied to the whole body, it is surely neither reasonable nor proper when applied to a local inflammation, which is neither more nor less than a fever confined to a local part. Yet this practice is by no means confined to such as may be called the unlearned; for, I regret to say, it is as much the *usage* of the profession, as of the millions who depend on them for, what ought to be, scientific advice. It is on this account, therefore, that I feel myself the more compelled to disabuse my readers of this popular and almost universal error.

For the sake of illustration, let us trace the history of a boil. A small pimple appears on the surface of the skin; and this, in a day or two, is surrounded by a red blush, which gradually hardens and extends, until, by the fourth or fifth day, the entire area of the blush is hard to the touch, and the whole has an ugly, dingy look. Here, the part affected is that wonderful organism—the cellular tissue, which lies beneath the second skin, directly over the muscles of the body. Now, the chief function of this tissue is to protect the muscles by its elasticity, and supply the skin with elements of nutriment;—while, as regards its structure, it is a mechanism or elaborate network of minute blood-vessels, whose multitudinous reticulations extend over the whole body. From its very constitution, therefore, any injury it receives is more liable to extension, than if such lesion occurred in any other part.

A boil, be it remembered, is, after all, nothing more than an effort of Nature to get rid of the injured portion of the cellular tissue, and to replace it by a new fabric. To do this, she requires a period of eight or ten days, and will accomplish the business in about this time, if you will but leave her alone and not interfere with her operations by officious endeavours to hasten on, what she can do much better herself, and that, too, with much less pain to the patient. What Nature has to do here, is simply to transmute what is solid of the injured part into a liquid, and then expel it; and you will always find her exhibiting a constant tendency to concentrate the operation at one point.

By cold applications, I grant, you may assist this tendency and prevent the spread of the mischief; but, depend on it, as surely as you resort to hot and stimulating poultices, so surely will you spread the area of the inflammation along the cellular tissue, disintegrate and destroy further portions of it, and produce a whole crop of foul-looking boils in addition to the one or two at first;—nay, by these means you may haply convert a simple boil into a regular abscess, and have to call in the surgeon to your aid. Again and again have I known persons afflicted with boils in the spring of the year, who, by an insane persistence in hot poulticing, have nursed and multiplied them through summer and autumn, until, from sheer weariness, they have been induced to neglect them,—and then the boils have died away of themselves! Often, too, have I known boils nursed and codled into abscesses by the same treatment; when it often happens that, long after the discharge has ceased, a sluggish and painful wound, arising from the too ready use of the lancet, has to be healed, and this not unfrequently leaves a scar that lasts for life.

Now, all these sufferings and annoyances would have been avoided, if cold applications had been first resorted to instead of hot; for this latter treatment only extends the area of the inflammation, implicating a still larger quantity of cellular tissue. In my own opinion, however, even the safer mode of treatment by cold applications is quite unnecessary, and more than they deserve or require. They are a characteristic genus of tumour, have certain laws of their own, and, if left to themselves, will obey them pretty correctly. They usually come *in sets of three*,—one large one and two smaller, or two tolerably-sized and one smaller, or three of insignificant size, though still troublesome:—yet, like the Graces, they appear in threes. The smaller of these die off under nine days, while the larger take seven or eight days to mature, break, and discharge their contents, and two or three days afterwards their place is only to be recognised by a slight discoloration.

If any treatment be adopted at all for them, which I deem wholly unnecessary, it must be extremely simple; for the more boils are humoured, the more do their numbers increase, or else their characters become changed into abscesses. A piece of diachylon plaister, about as large as a penny-piece, or larger if necessary, with a hole cut in the centre to admit the apex, and allow the discharge of matter, is generally dressing enough. Should they present a very inflammatory appearance, and moreover be very painful, a piece of linen simply dipped in cold water may be applied to allay the irritation.

Boils are very generally considered, as indications of health and a good constitution; and so far from thinking this notion improbable, I verily believe it to be based upon truth. In fact, I can easily explain it by bringing my hypothesis respecting the laws of health and disease to bear on it. Boils evidently are the result of a superfluity of acid in the system; and it is in the very act of Nature's relieving herself from this superfluity, that they are produced. Now, in a state of robust health, where the organisation is so perfect as not to have any predisposition to disease, Nature having morbid elements to dispose of, and not being able to implant them in the inner and more vital parts, fixes on the cellular tissue as their seat, and expels the morbid particles from the system by these purulent outlets at various parts of the external skin.

Boils, then, may be considered as the effect rather of the irregular distribution than of the mere existence of acid superfluities in the system; and hence it will be found, that no part of the exterior body seems exempt from them. Their favourite seat, however, seems to be the lower part of the fundament. To me, indeed, they appear to be a bastard kind of land-scurvy, and to require only generous living, with the addition of lemon or lime-juice, or of pickles, as an accompaniment to meat-diet. Boils, nevertheless, are more frequently accompanied by the *white* than the *red* tongue, thus indicating an acid state of the *primæ viæ,* that should be corrected by alkaline medicines; and it would be difficult to find a greater anomaly in diet than our very general habit of eating pickles with our food; because, as I have already shown, all fresh food is alkaline.

The appearance of boils, then, always betokens a purely *bodily* derangement, and they may fairly be termed the younger scions of a class of tumours, among which CARBUNCLE takes the decided precedence. In fact, I have frequently heard of boils being called by the style and title of carbuncle; for it is a fashion with some persons, and a very silly one, too, to wish their complaints to be thought more important than they really are, and thus they magnify their boils into carbuncles, because the latter imply the presence of greater suffering and disease. To prevent all mistake, however, I will explain the difference between the two; for I have had both in their most aggravated forms, and that, too, when I possess as fine a constitution as ever fell to the lot of man,—a blessing, too, that I owe to no merit or especial care of my own, but for which, nevertheless, I am truly grateful. Hence, I can speak of them from personal as well as from professional knowledge.

Carbuncle is an underground fire in the cellular tissue, not immediately seeking the surface like a boil, but running underneath with malignant intent and at a rapid rate, while the parts above, instead of yielding, are, by the additional heat below, more highly nourished, soon becoming thick and swollen, while the mischief is marked on the surface by only one or two yellow, filthy-looking heads that are exquisitely tender to the touch.

As respects its treatment, seven days after its advent,—that is, about the same time that boils come to a head,—the surgeon should apply his knife, and *cut boldly down to the very seat of the mischief;* for in cases like this, a wound three inches long and one deep is a simple affair and easily healed, when the evil has once been exposed. The object of this incision is, of course, to admit the air and so induce suppuration, which here will not come on spontaneously without the aid of art. Should the first operation, too, fail in producing the desired effect, cut again deeper and longer, making a second gash, so as to allow free access to the parts, whence the pus is to flow. The result will be the patient's immediate relief from that sense of constriction in the part, which ever accompanies this formidable disease. As soon as suppuration begins, the patient may be assured for his comfort that the danger may now be considered over.

All that he now requires is plenty of good living and support, with fresh-cooked meats, either roasted or broiled; for no lowering diets, no courses of medicine at all suit this malady, and the same rule applies to any and every sort of abscess or discharge of purulent matter.

Carbuncle chooses a nobler situation than the boil, namely, the back part of the head generally; and it arises from a nobler cause—namely, from an anxious and overwrought mind. It is, indeed, a most distressing complaint; and the patient will do well to summon courage and make up his mind to submit as early as possible to the knife. Well, too, will it be for him, if he has a surgeon with a quick eye and ready, unflinching hand; for if the one fears and the other falters, all is lost. In short, as it must be done, let it be done quickly. I have noticed, and not without sorrow, however, that in surgery, operations are often deferred till too late, and so become useless. Thus a mistakenly humane wish to try the curative powers of Nature without having recourse to art spoils many a good case, and leads to the sacrifice of many a life. Better far were it not to put the patient to the pain and torture of the knife at all, if too long neglect is allowed to make the issue doubtful, or cause the death of the patient. Such, then, is the difference between the *patrician carbuncle* and the *plebeian boil;*—the latter should be treated with that contempt which its low character and habits deserve; the former, owing to its secret, insidious, and undermining propensities, should be quickly cut down to and exposed.

To return to the subject of festers, whitlows, red and painful blushes, evidently disposed to form abscesses, and all those simple inflammations of the body proceeding from punctures,—all those complaints, in short, whose first nucleus is derived from the body itself, not from a fall, blow, or bruise, but precisely in the way that fever is produced generally,—all these should be treated by cold applications. At all events, never forget that it is the cellular tissue that is here affected—a tissue as inflammable as the most delicate network. Wonder not, therefore, that if it be but once set on fire, it will burn and be destroyed with equal rapidity! Is it not, then, under such circumstances, far more philosophical to quench at once the fire or inflammation by the use of cold applications, than to add fuel to the flame by putting on scalding-hot poultices of bread or linseed-meal, which only increase the patient's anguish, torture his mind almost to madness, disgust his senses by their odours; and, in short, unsettle his whole nervous system, extend the area of the inflammation, and throw his whole body into a high fever?

Liniments, again, are undoubtedly, and for the same reason, injurious to fresh bruises (which can never be too gently handled), because they aggravate them into abscesses; and to apply to them any fresh inflammatory actions, of whatever kind, is equally unphilosophical and injurious; though I am quite ready to allow that, after a certain lapse of time, when the inflammation has subsided, they prove beneficial.

Above all, never ignore, never forget the laws of mechanics, as regards the patient's position during the application of warm or hot fomentations. Should the ankle, for instance, be severely sprained, any good you might expect from putting the foot into an ordinary hot-water bath would be more than counterbalanced and destroyed by the vertical position of the limb, and the consequent gravitation of blood to the feet and toes. In such cases, therefore, let the leg be placed level with the body, the foot being even a trifle higher than the hip; and when the limb is in this position, proceed with your fomentations, constantly maintaining, or even increasing, the heat to the greatest extent that it can be borne. So, again, with regard to the wrists, knees, &c., or, in fact, any part that may require fomentation; such part should always be kept in the horizontal line, to facilitate the flow of the natural current of the blood.

Above all things, never foment with little dabs or bits of flannel. Two or three yards of flannel are not at all too much for such a purpose, and will not require such frequent renewals as smaller pieces. On emergencies, likewise, a flannel petticoat will be found a most capital fomenting cloth. This is always attainable; for, wherever there is a woman, it is reasonable to suppose that we shall find a flannel petticoat.

There are certain parts of the body, however, that suffer from festers, which, owing to their very limited connexion with cellular tissue, are accessible only to the application of warm water—as, for instance, styes along the edges of the eyelids;—so that, without entering into every minute detail, I must be considered as simply laying down certain broad, well-founded principles of treatment for your guidance in the management of all these and similar complaints.

From the above remarks, it will be seen that the true philosophy of hot and cold applications is diametrically opposed to the popular practice. To get into the right path, therefore, the public must reverse their old-fashioned usages. *As respects all fresh wounds, bruises, sprains, &c., of every description, they should apply heat*, to maintain the circulation and assist, not oppose, the curative processes of Nature; while, on the other hand, *in boils, whitlows, festers, incipient abscesses, and all local inflammatory actions, cold only should be applied*, for the purpose of reducing and concentrating the inflammation, so that small ailments may be kept small,—not multiplied and extended, to the aggravation of personal suffering. When abscesses have burst, however, the application of warm poultices is not only very comforting, but produces a vacuum for the discharge to empty itself, and sufficient warmth to stimulate to a healthy action.

Lastly, many of the disagreeable and painful affections just described have their first origin unquestionably in debility and loss of nervous energy in the system. Now, when this is the case, the course to be pursued is obvious;—for the patient requires good diet and generous living, and should have all practicable appliances offered him for renewing his strength. On the other hand, when such affections arise out of an excess of morbid elements in the blood, such medicines are necessary as will operate in correcting the state of the secretions and purifying the vital current. If, under these conditions, the tongue shows a moderately furred appearance, the alkalis, with gentian and bitter tonics, are the proper medicines;—whereas, if the tongue be red or abnormally clean, the acid tonics should be given, with quinine, iron, &c., according to the rules already laid down. In all cases, a generous, rather than a stimulating diet is to be preferred.

# CHAPTER XVII.

## HIGH SEATS, LOW SEATS, AND POSITIONS OF REST.

Unphilosophical practice of using low seats and lounges—Physiological reasons for recommending high seats after a meal, to aid digestion—Bad effects of a low seat in such conditions—When a low seat may be beneficially used—Positions of repose during sleep and sickness—Illustrations from the habits of savage men and animals, showing their correct instincts as regards the positions of the body—Boys and girls, their respective physical education compared—Bad effects of stays, backboards, high chairs, and a constantly upright position to the latter—A sitting position not one of drill—Positions of rest for tailors, gentlemen, scholars, &c.—Sleep and its proper amount for health at different ages.

Fashion and custom are often the cause of discomfort, and even disease. As regards positions of rest, I know nothing more prejudicial to health than the use of low seats,—whether low chairs, low squabs, couches, or low ottomans,—where they are unphilosophically indulged in. It is right that my readers should know, why I make these remarks; for who is there that has not used these luxuries, and why should they not be indulged in with reason? A true philosophy, as to the times of using and eschewing them, is all that is required. We must, therefore, first consider the structure of our own bodies, and what is our condition before or after meals.

We will suppose a good full meal to have been taken. Our endeavour in this case should be to aid its digestion by all possible means in our power; and mechanical laws are necessary to enable us to do this, and so promote all the good we have in view. An upright position of the body upon a high seat ensures this; and, if this be continued until digestion has taken place, a proper appropriation of the food will be the result. A free action for all the movements of the internal viscera then follows, as a matter of course. The spine is straight, the chest expanded, the thighs are depressed, and the abdominal muscles are free to act. The head is erect, and the elbows are thrown back.

Suppose, on the other hand, a man to place himself down on a low seat after having had a full meal; then the spine is curved, the back bowed outwards, and the distance from the upper part of the thighs to the face shortened by nearly one-third; in consequence of which, the abdominal muscles are relaxed, the shoulders rounded, the head bent forwards, and the chest contracted. The result of this is, that the whole mass of viscera, stomach, bowels, and their contents, is doubled up in a small compass. Is it possible that such a condition can be conducive to a healthy digestion? It is as impossible for any one to sit bunched up in a high chair, as it is to sit erect in a low one. So, slso, in a low chair, if you endeavour to sit upright, it can only be for a short time, and then most uncomfortably. The body will either be thrown back and the knees up to the chin, or at an angle of 45°, and the legs out, or brought forward with the elbows on the knees.

Let any one try the effect of what they are accustomed so thoughtlessly to do; and they will find these observations correct. Let me ask them, how they think digestion is to take place in such a position as they will get in a low chair? What they will get are indigestions, dyspepsia, flatulency, headaches, and all the effects of the first laws of departure from health;—nay, further, a persistence in this habit will beget rheumatism, gout, and all the tribe of evils to which the increase of flatulence and indigestion tends. Then they are told, and as firmly believe, that *their liver is out of order*. I need scarcely state the result likely to follow on this course. If a full meal be taken, Nature and anatomy, as well as the laws of mechanics and common sense, point out that the more upright the spine and trunk are kept, and the more play given to the whole abdominal viscera, digestion must take place more favourably than in the other position.

If it be asked, *when* a low seat is to be used, I simply answer, when the stomach is empty and the body fatigued. Let any one come home hungry and tired,—what is more comfortable than a low seat, or what position gives more rest than a low seat? A high seat does not rest a tired man so well as a low one; and if he has to sit in a high seat, or remain standing when he is hungry, he gets out of temper. Let him, then, throw himself into a low seat, and bunch himself up; for thus he gets rest, and can wait patiently for his meal. A low, luxurious seat, therefore, may be safely indulged in before meals; but afterwards the high seat is requisite to assist digestion and promote health.

We are apt to look with an eye of pity on savage tribes and the uncivilised of the human species:—yet, little as we think of these untutored children of Nature, civilised man is more or less artificial,—a slave to custom, and often a copyist of the worst models. The ease of a graceful and symmetrical savage, his manner of squatting, his erect bearing, and his various postures, when fasting or after feeding, are very striking; and the perfect stretching of his whole frame on the earth, or his restless, upright position when full, prove his instinctive knowledge that such a posture is requisite for digestion. He knows that he could not breathe so freely, were he to squat at these times; and to keep always in good wind is to him of vital importance. In times of dearth, on the other hand, if winter lasts too long, and his scanty stores get low, he squats and huddles himself up, brings his face down even to his thighs, in order thereby to subtract as little oxygen as possible from his already close wigwam. He knows no philosophy for his acts; yet Nature, if she has given him imperfect reason, has not been less kind to him than to the animals, but, by more strongly tincturing his instinct with reason, places him still above them, if only by a degree. Thus Nature, acting through the savage and the brutes, offers even civilisation a lesson.

Habit has introduced us to the use of chairs; and whilst in the sitting posture we form three lines, two perpendicular and one horizontal:—from the head to the seat and from the knees to the feet are the two perpendicular lines; while from the seat to the knees is a horizontal one. For perfect rest and repose our position is the same as in bed; and in winter we curl ourselves up in this attitude. In summer we enjoy the cool stretch, and think to continue it; but when asleep, our senses and reason both shut out, we instinctively draw up the knees, and lie, as it were, in a sitting position.

In sickness, especially, the position of the patient in bed should never escape notice, especially when he seems not to be observed, or else is asleep. All know the long-continued horizontal position of the fever-patient. In fevers the spine is always weak;—whence lying upon the back with perfectly outstretched limbs is Nature's true position of rest. Almost the first indication of the decline of fever is the drawing up of the knees. The next position follows, as a matter of course,—namely, turning over on the side with the knees drawn up.

In certain affections of the lungs, Nature points out, that the body requires elevating and the head raised. In other affections of the lungs and chest, the shoulders require raising, while the head droops forward. In all heart-diseases, again, where it is requisite to get the greatest possible amount of air for respiration, the head is thrown back to get a more direct current through the windpipe. In heart or chest-affections of animals, such as cats, dogs, or horses, the chin is raised and put forwards, and the mouth opened to as convenient a level as possible, with the view of allowing the most direct passage of the air to the top of the windpipe. Watch also the many positions, which instinct alone guides them to adopt. Shall man, then, in his civilised state, shake off his reason and not let himself be benefited by his instinct as an animal? Let him, then, reflect on these few observations, and let not fashion fasten on him a disease to be tampered with by an imperfect art.

Callisthenics are studied and well paid for now-of-days as a branch of youthful education in our schools; and yet, after the lesson is over, its laws are altogether set aside or ignored. Many principles adopted by parents, governesses, and schoolmistresses are very wrong and inconsistent. As young girls are placed in stays, or made to wear backboards, constant vigilance is exercised to make them sit upright; and then the surprise is, that their spines curve! A number of directions and exhortations are constantly made to enforce certain positions, all at variance with natural ones.

With boys a far different principle is adopted. They have no stays, and, therefore, lounge or bunch themselves up; and thus they pursue their studies with a natural ease. Directly they rise, they stand erect, because they are unfatigued, though they may have adopted the apparently ungainly attitude of stooping over their studies; because in this position they have got rest. Indeed, if we take a whole school of boys, we shall not find one with a curved spine.

Look now at the girls:—All the time they are at study, not being allowed to do the same as the boys, their bodies are screwed in various positions of side-curves for ease or comfort; which positions, when they stand up, are more or less retained. Too tight stays, or too tight or too close dresses, that will not allow sufficient freedom of movement backwards or more particularly forwards, have the effect of throwing them on one side. Curvature of the spine is the result; and then the stays must be furnished with a strong bone here, a small bone there, and a stiff wadding at another part; in fact, all artificial means are adopted to cure what artificial and unnatural positions have brought on, and the very thing falsely thought to be conducive to elegance, destroys it, thus often spoiling a well-formed and graceful figure.

The fact is, wherever art opposes Nature, Nature will in return war against art. Whilst the form is growing, therefore, give it every latitude in the sitting position, not cramping it with stays or tight dresses. *The sitting position is one of rest, not of drill;* the drill is meant to be exercised when in the upright position, not when sitting. When girls have attained their full growth, the natural pride of the sex in sitting elegantly or uprightly will be a sufficient inducement to insure that; and I may observe, that those not too early used to stays have easier movements and fewer curvatures.

There is another evil, which is perhaps somewhat abated in the present day in comparison with what it was formerly;—I mean the use of the very high chair, with a very small seat and very straight, high back, which used to be playfully called by girls the "little purgatory;" and a most intolerable instrument of torture it is. Very few girls are long in the leg, in comparison with those that are short. If tall, they are so owing to the length of the legs;—if of moderate size or short, the body is long and the legs are very short. Hence you may frequently see, that when a short girl is sitting on the same level with a tall one, both are apparently of the same height; whereas, when they are standing, there is a great and marked difference.

The above remarks abundantly show, that the bodily organs must have natural development; that boys may be round-shouldered and even have an ungainly stoop,—yet, as they grow up to be young men, they hold themselves firm and upright, all owing to the freedom in their dress, and the rest they enjoy when sitting; while girls' figures, on the other hand, are more spoiled by the sitting positions than by any other. In fact, few school-girls get any rest in the presence of their governesses. It is only in their play-hours and away from this unnatural drill, that they can sit in couched or natural positions.

Rest is attained in peculiar positions by various people, according to their habits, occupations, or mental exercises. Thus tailors, who sit cross-legged twelve hours a day, never rest so thoroughly after walking, or running, or fatigue got in the upright position, as when sitting cross-legged on a level surface. Neither the chair, nor the sofa, gives them so much rest as the peculiar position which they adopt in the exercise of their calling; and they are even still more quickly restored by doing a little stitching as well,—showing that occupation of the mind has much to do in aid of rest to the body.

In many other instances positions of rest after labour are equally peculiar. The literary man, after fatigue in the upright position, can never get rest so well, as when occupying his mind while in a lounging attitude. If he is a reading man, the book will accompany the position; if a writing man, his pen will be actively employed, and by the aid of one and the other he soon gets rested and forgets fatigue. But take away their wonted occupation, and the simple rest is insufficient.

Whatever position is taken for rest in the healthy state of the body, it should always have a regard to the mind, and whether that rest be accompanied with occupation or not. The position of rest, too, must always have regard to the full stomach or the empty one, *as the high seat is best adapted for the former, the low seat for the latter.*

Rest in disease should always be in accordance with a mechanical position of the body best fitted for the due performance of all the bodily functions consistently with the comfort of the patient. With respect to the position of single limbs, some persons hope to get rest for a weak or bad leg by putting it on a chair, as far perhaps as the centre of the calf, and thus resting it on its two extremities only; while the knee—the most important part—is stretched by its own weight, and often aches considerably from this cause. This is a most unmechanical position, and should never be adopted:—the whole limb should be regularly supported, or not at all. Others, again, from the effects of a sprained wrist, bad hand, or diseased finger, carry that part in a sling with the elbow unsupported;—which is a practice equally vicious, causing great pain to the shoulder. Whenever the hand or wrist requires support in this horizontal position, the elbow should rest in the sling and the hand be brought to any angle required;—which will cause less fatigue to the limb and less pressure from the sling. It is thus seen, how a popular error leaves two important parts unsupported—namely, the knee and elbow. Circulation is checked; and hence we have pain in both limbs—and often an action detrimental to the diseased parts. In all cases, then, whether of the whole body or any of its members—either in health or disease,—the laws of mechanics should be attended to; and then you will be anatomically correct.

After all, however, "the best of rest is sleep;" but this is often too much indulged in. There are several sayings with respect to the number of hours to be spent in sleep:

Six hours for rest the human frame requires,
Hard students may to seven recline;
Eight, for the man whom toil or travelling tires;
But lazy knaves they always will have nine.

George the Third used to say, as regards sleep,—"Six hours for a man, seven for a woman, and eight for a fool;" while the great Duke of Wellington used to observe,—"Have but one sleep;—and with the first turn, turn out."

Again, some philosophers have divided the day and night into three distinct occupations, and have said:

> If the four-and-twenty hours you would truly keep,
> Take eight for work, eight for play, and eight for sleep.

Again:

> Nature requires five hours, labour seven,
> Laziness nine, and wickedness eleven.

Shakspeare apostrophises it, as—

> The immortal sleep,
> Sleep, that knits up the *unravelled* sleeve of care;
> The birth of each day's life, sore labour's bath,
> Balm of hurt minds, great Nature's second course,
> Chief nourisher in Life's feast.

Sleep has been called "the death of the day." Infancy and age require much longer rest and sleep than adult life. Nothing, however, is more enervating than excess of sleep.

Indeed, habit, mind, and matter, very much regulate *sleep-rest* in all persons. To maintain health, the amount of sleep sufficient for the due performance of life's duties is the course best to be adopted;—and it may be well to observe here, that some require from constitutional peculiarities more sleep-rest than others. Beyond the above point, however, all sleep is hurtful and begets sloth, which in its turn begets penury and disease;—habits alike imperturbable, incurable, and hopeless. Courting second sleep, when the body has had enough for the proper refreshment of its organs and the preparation of the mind for once more performing the active duties of life, only induces heaviness and headaches. Finally, sleep should only be indulged in according to the requirements either of a healthy or diseased frame, and according to the different epochs of life,—whether infancy, puberty, adult life, or old age.

# CHAPTER XVIII.

## PREGNANCY, PILES, AND BAD LEGS.

Pregnancy—Simile from stone-fruit—Chemico-vital changes effected during pregnancy—Temporary arrest of disease a frequent result—The embryo and placenta: their mutual connexions and relations—Failure of vitality in the placenta, and its results—Prolonged retention of the dead ovum considered—False conceptions and miscarriages—Treatment of women during and after confinements—Parturition not disease—Low diet after accouchements injudicious, and why—Importance of good nursing—Directions on bandaging—Period of gestation—Attention to health during pregnancy recommended—Lactation and weaning—Hæmorrhoids or Piles: their nature and treatment; frequent in females during pregnancy—Puncturing, when useful—Frontal headache an accompaniment of piles—Blind and bleeding piles: their general medical treatment—Great utility of dilute sulphuric and nitrous acids—Bad Legs: their frequency and causes: mode of treatment—Varicose veins of the legs in pregnant females: their surgical treatment.

Pregnancy.—The greatest power, the noblest act of Nature, is the procreation of her species,—whatever form the product may assume, whether in vegetable or animal life. Taking our simile from the stone-fruit, we find the perfection of the fruit itself to be in exact proportion to the healthy development of the kernel. The small bit constituting the nitrogenised element, or germ of its species, is situated at a given spot in connexion with a large amount of other elementary matter. When this is fully developed, its future growth commences by the decay of the fruit itself,—next by the expansion of the kernel and the breaking of the stone,—and lastly, by all falling to the ground together. The large mass to which the germ is attached protects it. The alkaline humus of the soil, aided by moisture, swells it, and the germ sprouts out, nourished alike by its own accompanying parts as by a foreign bed; and so, by the opposing chemico-vital actions, union, and processes, it becomes a plant similar to that from which it was created. What a commotion is here in a little vegetating seed!

In animals, a higher function is put in requisition. The act of conception produces a commotion in the whole system. Everywhere a warning of the event is given; and a general interchange, a borrowing and lending of power and support is set up between all the parts; for it were absurd to suppose that in this mysterious operation one part alone of the whole body fulfils every duty. All parts, then, are called-on to contribute a share thereto. Inscrutable metamorphoses of secretions everywhere take place. The stomach, as president of all the members, nauseates first;—various uncomfortable sensations everywhere arise;—the nervous system takes up the great idea;—the first, the grandest act in Nature, that of reproduction, announces itself, trumpet-tongued, from end to end of the vast and intricate fabric;—all and every part, even the most minute, takes a share in the event; and, until all have settled down in the duties wisely and beautifully assigned to them, this commotion continues.

In some subjects, disturbance of some kind exists from the beginning to the end of the affair;—while in others, it soon goes off, and is followed by order and regularity. How evenly all this is balanced in the system! It takes place in the highest condition of health;—yet sometimes upsets it, causing slight departures therefrom. It happens in delicate frames, causing them to become robust; inasmuch as elementary disturbances, no doubt, rouse and change many dormant actions. It occurs even in the presence of organic disease, and for the term of its existence arrests its progress:—in short, everything must give place to that, which is the mightiest amongst all the mighty and beautiful actions of the animal fabric, its inscrutable machinery, and its laws. By these first steps pregnancy becomes developed.

The first act is to secure the little nitrogenised atom by a development of a greater mass of the kernel,—by and through which the maternal humus is concentrated. This is the medium of its support,—the little laboratory for all its supplies, to be therein altered, and changed, and fitted for every purpose,—and, as the germ increases, to give to it and receive from it everything for its use and development, preparing from the parent the elements transmitted to it for that purpose. Nothing returns to the parent again:—a house and nourishment are simply supplied, but nothing is taken back when once given;—and as this germ grows and expands, so room and space are afforded it. It is, in fact, to all intents and purposes, an organic arrangement with simple regulating properties, as follow:

*First.*—The integrity of the intermediate body between the parent and the germ,—namely, the *placenta*—more familiarly known as the after-birth;—

*Secondly.*—The healthy condition of the germ or embryo itself;—

*Thirdly.*—The mutual healthy union, as between both embryo and placenta.

Now the PLACENTA may fail in its vital processes from some unknown cause or irregularity of supplies, and the whole ovum and its contents become *blighted*. The germ, of course, perishes; and the irregular and misshapen mass is expelled with more or less mischief to the parent-system. The provision that was made by all the powers of the body is ignored; and counsel must be taken, how the unwelcome event is to be treated. All propriety is upset for a time; and it may so happen, that arrangements cannot be so suddenly altered, as to bring matters to their former standard. Whenever this first act occurs, a short time is sufficient for its rejection; because a given process has been interfered with.

On the other hand, the GERM or embryo alone may perish, or be blighted,—and *not* the placenta. This is a fact that takes a longer time to be known throughout the system; so that the duties of carrying on supplies still continue, and the placenta keeps increasing, as if it really were still engaged in nourishing and furnishing support to the germ. There are, also, all the indications of health in the occurrence of such a pregnancy. Several months may pass in this state, until Nature, finding out that her labour will be lost, begins to consider the ovum altogether as a foreign body, and as such treats it,—first by isolation, and then by expulsion. In the former case, she appears very arbitrary, and acts by impulses; in the latter, she takes time for apparent reflection. More inconvenience and danger then happens in the former act than in the latter. In this latter I have known some months to have elapsed, after all connexion between the parent stem and the embryo has ceased to exist;—during which the enlarged ovum has remained a foreign body in the uterus; and even so to the end of the usual term of pregnancy, when it has come away with all the attendants and dignity which accompany a complete labour with a full-grown child; and yet for many months the system has been uninfluenced by the presence of a dead ovum.

These facts I have already laid before the scientific medical world, under the head of "PROLONGED RETENTION OF THE DEAD OVUM IN UTERO, WITHOUT PUTREFACTION;" and I believe I am singular in having remarked upon this fact with reference to any given laws. When either of these circumstances occurs, it comes under the denomination of "*False Conceptions;*" and I may add, that they are more numerous in their occurrence than miscarriages, as well as more frequent than have been noticed by the faculty generally.

The third contingency arises, when the conception is perfect, the ovum perfect, the mutual growth of the placenta and embryo also perfect,—in which case a happy union and progressive mutual growth of a healthy character ensue and continue for some months. Nevertheless, this may be arrested from some accident or natural law, by the sudden death of one or the other structure,—and whichever dies first, the other is sure to follow; for their union up to this stage is so intimate, that life in one cannot exist without a corresponding vitality in the other. Should either die, both die;—and then, as foreign bodies, both are expelled. If this occurs at a time when an embryo is properly formed, it is called a *Miscarriage.*

In a healthy condition of its vegetating existence, the ovum increases with its embryo to the full term of gestation; and happy is the parent, who brings it forth to the mutual joy of herself and all around her. But then this period has its contingencies. I have already had reason to tell you elsewhere, that Nature loves health better than disease, and that the per-centage of health bears a very large proportion to disease;—and I must here also observe, that, in this great drama, the natural births bear a similar high per-centage to their departures therefrom;—which is a great fact for all to dwell on who become participators in this interesting act. Nevertheless, at the very moment when hopes seem about to be realised, they may be disappointed by a still-birth, and love's labour be lost for this time.

To bear out my assertion of the predominance of natural births over the reverse, I may mention, that throughout the whole world, in every family of man, only the smallest assistance is required,—often none at all. Nevertheless, it might be wanted;—and hence is it—that in civilised communities the well-qualified accoucheur is called upon to attend; because at such times his skill and anatomical knowledge may save both mother and child. For this reason I would always recommend his attendance in preference to that of a midwife.

This great act, then, being completed, it is necessary that several hours elapse, before the mother is removed from her position,—care being taken to place a pillow firmly, and with some force gradually exercised, against the outer walls of the abdomen, and that she be made as comfortable in this state as she would be if put to bed. The bed should be so arranged, too, that she need not be moved off it, but when the time arrives for her being made more comfortable, she may be drawn up from the lower part, in which she was originally placed for her safe delivery. Thus the pillow is as good as an actual bandage;—its use being, that after birth relaxation of the abdominal walls and the womb itself may be duly prevented by such an application.

If these get their proper contracting actions, all is safe; whereas, on the other hand, if they have a disposition to relax, floodings ensue, and all is wrong. It is to prevent this, that I like the first few hours—say at least three or four—to be passed quietly and tranquilly. A physical or mechanical action is thus judiciously combined with a mental quietude and rest after great and anxious exertions.

Women seldom or never suffer after-pains from the first confinement; but in all subsequent ones they do. For these, therefore, an opiate is usually administered. The excitement and exertions used are similar in their actions to temporary inflammation; and the patient can therefore tolerate opiates at this time better than at any other. Hence, the object is to knock down pains and the disposition thereto as quickly as possible. Do this, then, effectually by a bold dose, which may probably be all required; but many doses of *insufficient* strength may be taken without relief. Forty drops of laudanum is the usual allowance ordered; but a practical experience in two thousand cases has convinced me that sixty are much better, for the reasons above named; whereas I have known the smaller quantity, frequently repeated, to be not only detrimental to the system, but inadequate to effect the proposed end.

Infants, I have already said, should be put to the breasts as soon as dressed, because they excite the milk-glands by their sucking; and they not only get amused and comforted themselves, but do good to the mother; for unquestionably a wise provision has been made by Nature in the intimate connexion between the womb and the breasts;—the result of which is, that the more milk secreted, the greater is the relief afforded to the former, and the healthier that organ becomes. This is a great reason, why every female should nurse her own child, if she should be able and strong enough to do so.

To proceed,—it is a wise precaution to keep the lying-in chamber dark; and it should be kept as quiet as possible. The husband, the doctor, and the nurse, are all the attendants or visitors required for the first week or ten days; as officious female visiting and gossip always have a tendency to excite the patient, and often to imperil her life. Friends like these are no friends. I have ever discountenanced them, and no doubt have often given offence thereby; but the accoucheur has his patient's life and his own reputation at stake,—so he must act peremptorily and with firmness, regardless of others' opinion.

Confinements, it should be well understood, are not diseases; though they are really almost considered so, from the manner in which the parturient female is often treated. Reflect but a moment, and what have you in these cases? Health and a natural act! Let twenty-four or thirty-six hours elapse for the patient to recover from her great exertion and excitement; and what is to hinder a return to the usual healthy animal diet in moderation? Her physical exhaustion after her great fatigue, and the call now made upon her for the natural supplies to support her offspring, are amply sufficient reasons for giving her support. Where, then, is the use of half-starving or confining her to gruel and slops? This is not the way to get up strength at a time when a patient feels exhausted, and ready to sink through the bed from sheer want of support; especially, if all goes on well, and there is health. Let the case, then, be treated as one requiring support; and let no longer time elapse than the second day, before a well-cooked chop, or a slice off a joint, be given. Solid support, indeed, is absolutely needed; and, as a result of my consultation-practice in such cases, I can with truth affirm, that most of the ailments I have had to witness were brought on by want of discernment, and an obstinate adherence to the time-honoured custom of giving a low or slop diet, wherein there is neither sense, science, nor wisdom.

Very little or no medicine is required in the largest percentage of these cases, if Nature is only studied as she ought to be. The tongue is here an invaluable monitor; indeed, you want none other, if you can only read that as it ought to be read. Sick tales of pains, and morbid complaints from the patient, will often deceive; but the tongue never can deceive, when its language is directed to the eye instead of the ear.

In no class of cases is good nursing more requisite than during accouchements in the artificial and civilised state,—and few, in comparison to the many, get it. Yet, with all this, the patients, more especially of the poorer sort, do well. To the nursing department of my labours I owe much; and, knowing its great necessity, have considered it as of almost equal importance with my medical knowledge;—for which reason I have devoted a chapter to that especial subject.

Few nurses, though women themselves, know how to bind up a patient after confinement. They put a simple band round the loins and abdomen, which, on the least movement of the patient, gets round the waist or under the arms. How can this answer the end in view, when it is intended to press over the lower part of the abdomen? Many fine and expensive things have been made for those who can afford to buy them, and would be all-sufficient, if labours were confined to this class. After all, however, there cannot be a better bandage than a piece of coarse towelling, long enough to go round and wrap over in the following manner. Let the patient sit on the centre portion of this,—there being as much below the hips as far as the centre of the thigh bone as above them,—nearly to the waist. Let the one end overlap the other, and pin them tightly together from below upwards. There is here a regular pressure; so that it can neither get up nor down, and the patient can move about in bed comfortably, and feel herself well supported. If a little more pressure is required over the womb, bunch up a napkin, and stuff it down between the bandage and the night-dress; by which means you will get all that is required. These can be renewed as often as necessary, or be re-applied.

Women after confinement should not get about too soon. Some are able to do so earlier than others, from having more muscular power and strength; while others, who are of relaxed muscular fibre, cannot do so safely till after the lapse of a considerably longer period, inasmuch as the suspending ligaments of the womb may not be able to sustain its position when the patient is seated upright, and it may then fall by its own weight; which is a matter well to be borne in mind by all the parties concerned. In women, again, be it understood, there is a great, varied, and extraordinary difference in their form and structure; so that labour in some may be no great effort, though painful enough in any case. Let those, then, whom Nature has so formed that their labours are light, rejoice and be thankful, yet not think too lightly on the greater sufferings of others.

A mother should, if possible, always nurse her own child. The term of this natural act depends on several circumstances, her own power and supplies being the principal influencing causes. Should conception take place again during this act, the infant should be weaned as soon as the fact is known, as the milk thereby becomes much impoverished. As a rule, the parent is supposed to have an immunity from constitutional actions during pregnancy and lactation or nursing; but there are many exceptions to this.

Constitutional regularity often occurs during both these acts; or it may occur at irregular periods. During the early months of pregnancy, very large actions of this nature may take place without detriment to the growth of the ovum or its contents. Indeed, in many cases I have found just reason for supposing, that some of these inordinate actions have arisen from excess of supplies for all purposes required, and that the health and life of the embryo have been saved by them, rather than weakened—nay, that they have even proved beneficial fluxes;—while in other cases they have demanded astringent remedies to prevent the undue expulsion of the ovum, &c. Nature, however, in a large proportion of cases, may support this double action, and call upon her powers very well; and I have sometimes known her, moreover, to support the third action as well as the other two,—namely, nursing, pregnancy, and the regular constitutional act.

The period of gestation in the human female has, from an assumed law, been fairly estimated at nine months. Nevertheless, as her constitutional actions should occur every twenty-eight days,—there should be thirteen epochs in each year—like that of the moon. An average term of nine calendar months amounts to about two hundred and seventy-five days. Ten cycles of the constitutional action amount to two hundred and eighty days; so that a ten lunar-month pregnancy may be considered pretty nearly equal to nine calendar months;—and, from habitual obedience to constitutional laws, the female may be considered to bring forth at a period when the constitutional act would have taken place. Nature, however, is so wonderful and mysterious in her operations, that she may, on the one hand, complete her great end of perfect germination at the earliest possible period of time (say the expiration of the one hundred and eightieth day from the time of conception,—six lunar months and twelve days); or, on the other, this act may be prolonged to the three hundred and thirty-six days, or forty-eight weeks, or twelve lunar months; equal to eleven calendar months;—though the usual term is two hundred and eighty days; which form the ten lunar months of pregnancy, or nine calendar months.

Marvellously, indeed, does Nature obey certain laws and habits; and though she prefers her attachment to all healthy ones, she, nevertheless, has her bad habits,—as evinced in miscarriages. Several may occur in succession at the same period of pregnancy; and when this has once occurred, I strongly advise great care and caution against the second; for if this be once got over, in the face of the same symptoms developing themselves, a good habit returns in place of the bad one, very hurtful to the general health; and this is a great fact, which should be wisely and discreetly managed.

The healthy pregnant woman should above all things, whatever her condition of life, be active and cheerful. Indolent habits and lackadaisical ways are dearly paid-for in difficult, long, and often unnecessarily painful labours. The poor washerwoman who stands to her tub till warned by the pains of labour, may just have time to wipe the suds off her arms, and rush home, destined in a very short space of time, and with few pains, to be a happy mother,—no doubt, much to the envy of the indolent rich one, who can indulge on sofas and in idle habits, paying dear for them by forty-eight hours or more of suffering. Such, then, is pregnancy,—a natural institution, much influenced by the governing rules of society, and by either good or bad habits.

During the progress of pregnancy some attention is required to the effects on the system, brought about by an artificial mode of life. These are as much under the guidance and influence of the laws of health (developed by the tongue) as any other of the natural disorders; and this is one of its most useful characteristics,—because the simple functional disturbances that occur are thereby indicated, and are as simply remedied. There is one point, however, especially necessary to be attended to towards the end of pregnancy; and that is, due regard to the condition of the large intestines,—the lower portions of which should be kept free from accumulation.

In the first few weeks that the duties of nursing are carried on, especially for the first time in young mothers, it is of the utmost importance to have a good nurse; but whether this is or is not the case, much depends upon the medical attendant, especially if the latter is not content to delegate his duties entirely to the nurse. The breasts are an important part of his consideration; for often the nipples, brought into use for the first time, may become sore and tender, and have a tendency to chap or crack. They are often, indeed, so tender as to cause a reluctance in the patient to let the child take them; owing to which, the breasts will get over-filled with milk, the tubes become gorged, the whole mass large, and an abscess the result, —than which there is no more painful affection; for a labour, however difficult it might have been, or attended with however great sufferings at the time, is not to be compared with those attendant on what is called a "broken breast."

Great care should be taken, too, that in this stage the quantity of milk be lessened, and everything done to prevent such a calamity, that can be done by the thoughtful and judicious practitioner;—and here let me observe, that he who does not think and know something of the insidious march of this evil, until it is brought to his notice too late to check it, is himself much to blame for the neglect of a common duty. At this time, as well as at that of weaning, he should be all in all; for these affections come too frequently under his eye and observation to be allowed to escape his care and attention.

I would, also, warn my fair readers never to permit an inconvenience in these tender parts to remain even for a single hour without mentioning it, and, if not well informed of what to do, to ask older and wiser heads for advice. Weaning may, on the natural retirement of the milk from specific causes, be a very unimportant and simple act;—but, if it be attempted during a full and uninterrupted state of the function, it must be recollected that opposition is suddenly offered to natural laws. At this time, then, if not already fully alive to this fact, seek, I say, the advice of older and wiser heads, and do not run the risk, at last, of an abscess or broken breast.

One word more;—during the time of nursing, let mothers devote themselves entirely to their infants, and let the regular secretion of milk be as regularly taken by the child. If this is not done, both their infants and themselves will suffer in some way. Maternal duty should never be diverted from its great important end;—and yet I have seen giddy mothers turned aside therefrom by volatile pleasures and amusements, from which they reap in the end no satisfaction to themselves, but gain the bad opinion of the wise.

Such, then, are the few remarks I have considered it incumbent on me to make on conception, pregnancy, confinements, nursing, and weaning. The subject is large; detail would fill a volume of itself:—yet the brief hints I have given are sufficient to lead the mind to reflection.

HÆMORRHOIDS, OR PILES.—I have reserved the mention of these painful and unpleasant affections for this place, owing to the great tendency that the child-bearing woman has thereto; and though they are by no means confined to her sex, yet these complaints, as regards her, should have the first consideration. In another chapter I have mentioned the carelessness of the female, as regards the bowels; and this is one great cause of their first appearance. During pregnancy the great determination of blood towards the adjacent organs may cause piles for the first time,—especially in those who live high and have a languid circulation; and, when once this tendency has been set up, it seldom or never leaves the system.

Piles are the enlargement or engorgement of veins about the fundament, and are varicose or enlarged hæmorrhoidal veins of this part, similar to varicose veins of the legs, which will also frequently appear for the first time during pregnancy. The first tendency to piles will be announced by an irritation of the fundament, that gradually increases. At this time considerable care should be exercised, the greatest attention paid to the bowels, and a frequent application of the following ointment, which I have found most useful for that purpose,—

namely, one-third of zinc and two-thirds of elder-flower ointment combined with Goulard's extract, and made to the consistency of cream. Piles, if once allowed to get ahead, will enlarge rapidly and protrude, accompanied by periodical bleedings. I have witnessed the singular fact, that some females during pregnancy and nursing will obey periodic hæmorrhoidal discharges similar to the constitutional function, which cease after weaning, when that function is restored.

Even in the opposite sex, they do not appear persistent or continuous, but have a periodical action, evidently designed, when once set up, to relieve the body in some beneficial way. In the female, they are found frequently enlarged towards the termination of a pregnancy, and increase the pains attendant on labour. When this act is over, however, they are often much relieved and subside. Those subject to them should be careful not to take stimulants, and above all things to avoid spices, pepper, mustard, &c., or any diet in which spice is used; for these produce flatulence, which in its turn aggravates the evil by producing distension of the bowels.

Excess of the vital elements in the arteries of the large intestines, with want of power in the veins to carry them away, is one of the primary causes of piles; added to which we may mention that excess of nitrogenised elements themselves in the gut —(which is the natural outlets for such predominance)—especially when they are retained beyond the usual time. Piles, as all sufferers therefrom can tell, are both painful and unpleasant. When they do not burst of their own accord, and thus give relief, leeches have been much recommended; but these only afford a temporary relief by reducing the amount of arterial blood on their external coats, which are highly vascular; but they do not actually relieve the containing tubes of their blood. Being veins, and veins being largely furnished with valves, there is no danger in puncturing them; and I always recommend, if the sufferer has courage to bear it, to have them freely opened with the lancet and emptied; when, if this be well done, the sac will shrivel up, and though another portion of the vein may get full and form another pile, yet this requires time; and a longer immunity from suffering ensues. If, then, the patient can muster courage enough to have this operation performed, when the pile protrudes, much prolonged suffering will thereby be avoided. But, alas! as in the raging pain of an aching tooth, which no remedy can allay short of extraction, the want of a little fortitude and moral courage too often unnecessarily prolongs the patient's suffering.

Persons of sedentary habits are very subject to piles,—especially if they sit on soft cushions for some hours together, as excess of heat has a tendency to cause them. Sitting on damp cushions, in or outside carriages, for several hours, will likewise often prove an exciting cause of them. Piles may occur, moreover, within the fundament, not protruding at all, and even then be exceedingly painful, especially at a time when the bowels are costive. During the time that these vessels are becoming engorged, the pain and annoyance are pitiable; the sufferers cannot settle to any employment; they can think of nothing else; their mental energies are disturbed; and all the reflective organs being situated on the front part of the head, heat, throbbing, and frontal headache are the result. When relief, however, has once been obtained by a sudden bleeding, the mental powers are relieved after some time, and the frontal headache subsides. I have already alluded to the fact of women neglecting the ordinary calls for evacuations of the bowels, and flying unnecessarily to the use of aperient medicines. This very pernicious habit, I maintain, is another great exciting cause of these engorgements.

Piles are of two characters,—the *blind piles,* or swellings of the veins, that seldom burst, but are always painful,—and *bleeding piles,* which seem to observe given periods for bursting, and thus afford relief to the sufferer. Their presence appears to me always to indicate a want of tonicity in the system, and to accompany the cold and medium temperaments, —whether these persons be plethoric or the reverse; for in a want of general muscular activity there is a slowness or inertness of the circulation, and thus in parts, like the large intestines, excess of organic materials collects, with a certain engorgement.

Those who suffer from piles should endeavour to procure an action on the bowels *just before going to bed;* for then the body gets rest in an horizontal position, when the patient will soon forget in sleep the uneasy or painful action. If this occurs at the beginning of the day, and business or the usual duties of life call them to pursue their wonted avocations, some hours will elapse, before they recover the effect. All forcing medicines of an aperient character should be avoided,—such as aloes, colocynth, castor-oil, calomel, senna, compound-rhubarb, and such like; while sulphur has been recommended, and seems to act beneficially. This medicinal agent, be it observed, is also one of the organic elements generated in the large intestines, and on this account appears particularly well suited to those suffering from blind piles.

For those who are subject to bleeding and protuding piles, I have never found anything better than the dilute sulphuric acid combined with an anodyne, and a very small proportion of dilute Epsom-salts. This acts often like a charm, being mildly laxative, anodyne, and tonic, just what the parts require. This should be given, when the large bowels require a little unloading. Nevertheless, even in cases where the bowels act well of themselves, piles are troublesome, both from enlargement and bleeding;—in which cases the use of the dilute sulphuric acid combined with the anodyne alone will prove a great comfort. Nitrous acid is, also, very efficacious in all these cases.

As the irritation of piles will always cause a mucous discharge of an acrid character, frequent ablutions and great cleanliness are particularly enjoined. The result of my experience is adverse to cold bathing, even where piles are not troublesome:—and, when disposed to bleed, they should be encouraged by warm poultices and fomentations. The use, also, of tepid water after every evacuation I strongly recommend; and after this has been done, the part should always be anointed with the ointment prescribed in the chapter on the pharmacopœia; for it allays irritation, and is most comforting to the sufferer. To conclude,—of all the small ailments to which the body is liable, not of a dangerous character, there are none equal to piles for annoyance or causing depression of mind and general *malaise*,—taking away all power of exertion and thought, producing morbid vexatious feelings, and interfering with the ordinary duties of life.

BAD LEGS.—The same class of causes that produce piles will produce sore and ulcerated wounds in the lower extremities. The rupture of a varicose vein will resolve itself into a troublesome wound difficult to heal. Here, again, the female will be the greatest sufferer. The number of cases of this kind occurring in the middle and lower classes—the latter especially—is unusually great. Their own inattention and want of care, their incapacity often to attend to the first outbreak, their duties to their families demanding their attention, provoke them to continue their occupations, when they should rest; and this, of course, stands in the way of their being cured quickly at first. They thus get a bad leg, which lasts for months or even life; and so rife are these complaints, that hospitals cannot give them beds;—for the whole of them would very soon be filled with cases of bad legs, to the exclusion of every other bodily complaint. The out-patients of every hospital weekly attest their number. At the present day, when institutions are springing up by the assistance of the benevolent for distinct and separate diseases, I know no boon that would be more acceptable than a dispensary in every parish for the admission of such cases. Two or three weeks' rest, with proper care, at first, would save many a poor woman from a life of misery. They cannot—and even if they could, they would not—lie up and take perfect rest at their own poor dwellings. In fact, the only chance they ever get of a little rest is during their confinements; and often a bad leg of some months' standing gets an opportunity for healing at this time.

The worst consequence of bad legs occurring to the female from varicose veins is, that the sore is much influenced by her constitutional actions; and then it is aggravated by every return;—so that they have at last acquired the denomination of the *menstrual sore.* When these occur at or about the change of life, they often continue to its very close. As to the causes of such complaints, ignorance, neglect, and bad habits of life, combined with inability to attend to the limbs, are the great sources of much of their suffering. A mild lotion of dilute nitric acid to cleanse and disinfect the wound, a mild mercurial ointment, sufficient to stimulate without acting on the absorbents, and swathing the leg with a proper bandage, wetted in cold water night and day—these are the best remedies to be applied externally; while at the same time the constant use of the mild aperient, composed of dilute sulphuric acid and Epsom-salts, as recommended for piles, constitutes the best means to be used internally. Inordinate vital elements are thus checked on sound, unerring principles.

The tendency to swollen or varicose veins should always be opposed, as soon as they appear, by proper bandages or laced stockings. The gradually increasing size of the pregnant womb presses on the large trunks of the great receiving veins, and so retards the flow of blood in those of the lower extremities. When there is once a tendency to this enlargement, they never entirely go down; because the muscular coats of these vessels have been stretched. These swellings might never have occurred, except from pregnancy; but when they do, no time should be lost in bandaging them and keeping them within proper limits by external pressure. If the laced stocking cannot be obtained, bandaging constitutes the next best mechanical means; but this is not always properly understood or judiciously done,—in which case it often does more harm than good.

A few words on bandaging, by the way, will not be out of place here. *First,* then, be it understood, that the blood in the veins flows from the extremities to the heart—so that any pressure above them would cause them to swell more, just as the arm is known to do from being bound-up tightly above the elbow for the purpose of letting blood. The next thing is, to consider what bandage shall be used. A thin, but coarse linen bandage, about two inches wide, without selvage or hem, and five or six yards long, is the commonest. A better one than this, however, is the stocking-bandage, a very nice double fabric, which is made about three inches wide, about four yards being sufficient for a leg, if not very large. This bandage, when washed, should be washed just as flannels are, not soaped, but in suds; and when hung out to dry, their parts should be lightly separated, or else they might adhere. When they are rolled up for bandaging, they should be stretched from side to side, which arrangement gives them an elasticity lengthwise. Many of these are spoiled after a few weeks' wearing from want of care in the washing. Another fabric used, is that made of elastic india-rubber or caoutchouc web; but very few of these are worth using, being for the most part made without sense or judgment as regards the purpose intended;—the best are thin and of the most elastic kind, capable of stretching out to double their length with the slightest extending force.

Again, as to the mode of using all these sorts of bandages;—no leg should be bandaged except from the toes, whence it should commence, tightly wound round the foot and the same round the ankle;—but just above the ankle to the rise of the calf of the leg the slightest pressure possible should be used, or else the blood will be prevented from circulating between the calf and the foot. When the calf is reached, it should again be tight; because it is here, that the veins enlarge and become varicose. Care should now be taken, that half the previous circle of the bandage should be covered by that next in succession, to ensure a regular pressure all the way up. If this be not attended to, the flesh will be left in ridges, and more harm done than good. A well-fitting stocking should be carefully pulled over the bandage, and when on, should betray no appearance of the leg having been bandaged at all. This shows true mechanical handling; and when the bandage gets loose, it should be immediately removed; nor when it comes off, should the leg exhibit any signs of having been bandaged at all.

The fittest time for applying the bandage is, before the person gets out of bed after a night's rest, when the body has had the benefit of some hours' repose in the recumbent state, and before a pendent position of the limb has caused the veins to fill. Bandaging, indeed, after a person has been up some time, is not wise; because the smaller veins are much more swollen in proportion than the larger ones, even if they do not show it. Nevertheless, the leg is altogether larger; and this fact may well be inferred, even if it did not at first strike the individual himself. If during a first pregnancy the veins of the leg should swell, I recommend the immediate use of the bandage; for, when the labour is over, the blood may return with its usual integrity through the veins, and there may be no necessity for further continuing this act, until probably another and similar event renders it necessary.

This chapter, apparently treating on such opposite subjects, is designed to show the consecutiveness of disease, and how much certain actions, whether medical or mechanical, influence or induce others; also, to illustrate a given train of excitement in the system from mechanical causes producing morbid disease of the vital elements. Thus the very connexion of these, either by natural actions or well-applied artificial remedies, will relieve many of the mechanical influences. The first outbreak or appearance of any of these matters should be promptly attended to. Very few and very simple remedies will avail at first; but if the causes be allowed to increase, they become formidable by setting up another train of symptoms. Thus in ordinary and healthy confinements, the system recovers itself in a marvellous and natural manner; whilst in all miscarriages, which are states out of the natural order of things, the greatest disturbance will often ensue, both of a medical and mechanical character. A female never requires the presence of a well-informed physician, more than at, or after, these occurrences. The higher classes attend to these things; because they can afford to do so. The middle and lower classes often think them unimportant; and, having a regard more to their pockets than persons, they endeavour, unless compelled, to do without the doctor. The result is, as I have often seen, very lamentable to themselves and their families.

So again any neglect of piles or swollen and varicose veins, and the first process of the little sore on the leg, from the slightest rupture of one of these small vessels, often creates a constitutional action, sufficient to baffle the wisest in the profession. Never then neglect what may be called trifling effects, and more especially of those which form the subject of this chapter.

# CHAPTER XIX.

## HOT, COLD, AND MEDIUM TEMPERAMENTS.

Universal presence and equalisation of caloric in human bodies—Quick, slow, and medium temperaments, with their respective characteristics—Diet, as influencing the character of nations and individuals—Freedom and the use of salt: their mutual connexion—Salt the basis of our secretions—The salt-duty and its former bad effect: the good resulting from its removal—Excess of salted meats pernicious—Salt-duties in India raised by the East India Company, and their pernicious effects on the native population—Influence of salt on the blood, and moral character of nations—Type of Asiatic nations a perpetual obstacle to their civilisation—Illustration from the recent mutinies in India—Soil and climate of India undeveloped, and the cause why—Future policy of England in British India—Irregularities of the circulation of the blood in individuals—Ill effects of insufficient clothing in winter: thin shoes reprobated: cold feet the cause of restlessness and other complaints—Directions for gaining warmth in bed—Evil of sending children out cold in winter—Example of the northern nations—Concluding advice.

Every person bears about him a certain amount of heat or caloric, the result of certain chemical vital actions, constantly going on in every part of the body, and producing a persistent change of structure. This varies, however, according to the difference and peculiarities of each individual. A person weighing twenty stones may possibly be endued with more heat than another of half his size; but the proportion of one to the other is the same for all natural purposes; and hence each individual is charged with his own regular and sufficient quantity.

Some persons have this heat distributed very regularly, and a regular heat is therefore kept up in every part of the body;—while in others it is very irregularly distributed, the quantity being still the same, though there be more at one part than at another,—one part being a gainer at the expense of another. Some have very quick circulation, some very slow, others of a medium standard. Much of the character of individuals depends on this: as, for instance, you will see in those whose circulation is rapid and quick, quick actions; their ideas are quick, their utterance is quick, "the ear more quick of apprehension;" their eye quick, too, and they have a nimble hand,—all of which denotes a bustling activity going-on both in mind and body. You may well imagine, then, that their digestion and appropriation are quick; their manner of eating and drinking quick; for "quick at work, quick at meat," is an old saying, and not an untrue one. All these things obey laws, which form part of the doctrine I wish to impress on you.

On the other hand, let me observe, you will find persons who have slow dispositions, slow at meals, slow in digestion and appropriation, slow of thought, slow and deliberate of speech, slow in their movements,—all this betokening a character of caution, and exhibiting a remarkable deficiency in mental speculation. In the quick, active circulations, you get thought, invention, genius, "which is the hot condition of their blood;"—in the slow ones, doubt, calculation, suspense, irresolution, and distrust:—in short, they are men whose blood is very "snow-broth," and who may well say,

Our doubts are traitors,
And make us lose the good we oft might win
By fearing to attempt.

In the former you get fire, boldness, dashing courage; "hot blood, hot thoughts, hot deeds;" in the latter, hesitation, diffidence, and timidity.

It is a simple rule to divide everything into three; and, therefore, in this we will take the third or medium division, which comprises those, whose circulation is neither too quick nor too slow, but often partaking of both characters. In these we get premeditation and often good projects stopped by calculations;—inventions and thoughts are thus always arrested and strangled in their birth; and if brought forward successfully by others, these persons will say, "Well, I thought of that; but really I did not like to broach it." Yet these form the most numerous and important class; because they are the followers of the "bell wether," and go over a precipice, like sheep after a leader, to their own injury, or come down on their legs harmless, as the case may be. These are the retainers of both good and bad ideas, customs, habits, thoughts, opinions, or fashions, and are the persons who preach, that as all the world has hitherto gone on well with waggons, there is no need of four-horse coaches,—or, having four-horse coaches, there is no need of railways. They are for ever wishing to continue things as they are, and do not move themselves, or allow others, until they are propelled by some universal law. Nevertheless, they occasionally take up, with zeal and efficiency, new things, and give an impetus and popularity to members of the quick school, their doctrines, their laws, their discoveries, and their inventions; while those of slower calculation, "with a kind of sleeping in their blood," keep up conventionalities, circumlocutions, and red-tapeisms. Out of the medium class, who are not fast enough in their circulations, and who possess no invention or genius, we get, however, a certain shrewdness and cunning, that often passes for ability and talent; whilst of the slow class, we have men of fair judgments, as between all parties,—not brilliant, but sound magistrates, parsons, lawyers, and doctors,—"men of pale and bloodless emulation." From quick circulations, on the other hand, we get genius:

> The genius and the mortal instruments
> Are then in council.

Among such, too, we find active and intuitive generals, admirals, and daring spirits, wherein "the blood more stirs to rouse a lion." Yet we obtain very mediocre ones from the medium class; and here, most unfortunately, family-interest often puts these dallying mortals into false positions;—for not being able to make up their minds, and having no intuitive genius to grasp at the whole bearings of the case, the hesitating general finds that the enemy will, "by some sly trick, blunt Thurio's dull proceeding;" nevertheless, this class gives us good tradesmen, bankers, manufacturers, and merchants; while it yields also the fraudulent class, forgers, and such as we have unhappily seen disgracing the commercial world during the last few years,—also professional thieves, and those who are first-rate adepts in roguery.

All this class are quick at receiving and carrying-out the ideas, inventions, thoughts, or designs of others, though they cannot originate them themselves; such is the effect of circulation in the system, and what generates mind, and what matter.

Every person, therefore, has his due quantity and quality of blood, however this may vary as regards its propulsion and distribution. Much depends, doubtless, on the mixed condition of blood in races,—on early training, education, ideas, diet, air, occupation, and associations, which make up and form the character of nations,—

> Even the blood that in their very arteries doth flow
> To raise the latent sparks of thought, or move too slow.

No wonder, then, that the Anglo-Saxon race is both envied and traduced. The blood of this race is more mixed and interbred, if I may use the term, than most others; though chemistry, of course, would furnish the same components for the whole human family. Nevertheless,

> Strange is it, that our blood
> Of colour, weight, and heat, pour'd all together
> Would quite confound distinction, yet stand off
> In differences so mighty.

All the earlier and more hardy spirits leap in the Anglo-Saxon, while a more uniform standard is maintained in all others, by a long-continued and (with slight exceptions) unmixed character. Well, then, may foreigners exclaim of England:

> Now, in the name of all the gods at once,
> Upon what meat doth this our Cæsar feed
> That he is grown so great?

All I can say is, that the Anglo-Saxon has his destiny to fulfil, and his race owes its greatness to what it lives on;—to his own freedom, the freedom of his own institutions, and his free use of salt.

There can be little doubt, in the first place, that—climate always considered—the food of nations influences their character, as much as the food of the lower animals influences theirs. If we take one solitary instance in the animal kingdom, we find the Queen-bee a distinctive member of the hive ; all her peculiarities depend on her nourishment, by which mainly she is made what she is. The grosser and coarser the diet, the grosser and coarser the feeders, so also the grosser and coarser is every attribute of the latter, both mental and physical; whereas, on the other hand, the higher the cultivation, and the higher the class of diet, the higher likewise becomes the character both of body and mind. Since the famine in Ireland, when the population became starved and pauperised, and was fed from this country by the cereals in place of the potato (which latter has proved a curse rather than a blessing to that country), increased contentment and satisfaction of mind have been the result, as well, no doubt, as an evident improvement in the physical powers of the nation.

Since the Corn-laws were repealed, and Protection ceased to exist, "the agricultural and other working classes of Yorkshire, Durham, Northumberland, Cumberland, Westmoreland, and Lancashire, who had lived on oat, pea, rye, and barley-bread, with potatoes,"* now eat wheaten bread,—"also, portions among the inhabitants of other counties, who are able to obtain only a quarter, or third, or at most half of the wheaten-flour they could consume if they possessed the means to purchase it." We, also, beyond all doubt, get a larger supply than other nations, and have proportionably improved in moral and physical condition.

"In consequence of the failure in the growth of potatoes, as well as the great deficiency in the crop of beans, peas, barley, and oats, in 1846, numbers who were then compelled to eat wheaten flour have not again returned to the coarser food."

"It was generally assumed, and frequently asserted, in 1847-8, that England and Wales produced 16,000,000 quarters of wheat, when certainly they never grew more than *half* that quantity; though they could easily be made to double, if not treble, the present quantity of every production of the soil. In illustration of my opinion" [says Mr. Curtis], "I will state one instance. Norfolk contains about 250,000 acres, say one-fifth more than Hampshire; and assuming the former to possess one-fourth more arable land than the latter, and that both counties are of equal fertility (though I suspect Hampshire to be naturally far the best of the two), Norfolk should only produce one-fourth more of all corn; instead of which, the returns of 1841, 1842, and 1843, prove that Norfolk produced *considerably* more than *four* times the quantity of wheat, *nine* times of barley, *eight* times of rye, considerably more than *three* times of beans, nearly *twice* of peas; and Hampshire only exceeded Norfolk in producing *barely one-half* more of oats."

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* John Curtis on Agricultural Statistics.

"Norfolk exceeded Hampshire in the article of wool *three times and a half* annually, notwithstanding the superior downs, pastures, and meadows of the latter county; and no doubt a similar difference in the number of cattle would result from improved plans of husbandry. Even Norfolk, by an improved cultivation generally, could be made to produce *at least one-third* more than it does now; and both England and Wales could double or treble the present quantity of the entire produce of the soil."

In 1847, Mr. Curtis calculated that 9,000,000 quarters of wheat from all sources, both home and foreign, comprised the total quantity consumed by 16,000,000 persons, the then assumed population of England and Wales—a little more than *half a quarter of wheat* to each person; and he is of opinion that, supposing an improved cultivation throughout the United Kingdom of England, Wales, Ireland, and Scotland,—taking their united aggregate population of 1847 at 27,000,000,—38,000,000 quarters of wheat might be grown, leaving, after giving one quarter per head to every individual, a surplus of 11,000,000 quarters more than they could consume or require.

This, however, or something approaching to it, was actually stated to be the fact by many of the lecturers and orators during the Corn-law agitation. They stated that England and Wales raised 8,000,000 acres of wheat annually, and that the produce averaged *three* to *three and a half* quarters per acre—equal to 24 or 28,000,000 quarters.* This quantity, compared with the population, will at once exhibit the fallacy of such assertions; for if they were correct, we should manifestly have produced from 8 to 12,000,000 quarters more than the entire population of England and Wales could possibly consume or require.

There is very little doubt in my own mind, that instead of England declining, she has not yet reached by hundreds or even thousands of steps, the greatness that she is capable of attaining. She is even now capable, moreover, of supporting her own population without any foreign importation of grain whatever, were her land only judiciously and improvingly cultivated; but now she leaves this to a class of men—the farmers—who, as a body, notwithstanding the immense strides they have made, are still far behind every other class throughout the kingdom. At least 1,000,000 more agricultural labourers could be employed than there are now, if farming were still to be carried on by manual labour.

The days of manual farming labour, however, seem doomed; for every day's experience convinces us of the necessity of machinery, which would relieve a multitude of hardy, enterprising Anglo-Saxons, who are required for the higher purposes of colonisation, the call for which is every day increasing. Improved cultivation by machinery, equal to the labour of these 1,000,000, would yield an annual increased produce to England of 200,000,000*l.*, in addition to her present wealth, which is certain to increase in the same ratio. This is quite sufficient to convince the whole world, that wealth will always win battles in the long run, that our island is not to be touched yet by a foreign foe, nor is the New Zealander to sit on London Bridge to contemplate the ruins of London.

If landowners and merchants increase their incomes, it follows, from the genius of the Anglo-Saxon race, that the powerful middle class, and the strong, lusty-armed labourers, will no doubt obey the same law of proportion that they have ever maintained,—keeping up their balance of numbers and the strength of their aggregate elements. That the two latter classes should merge into the patrician, and all live in such luxury and indolence that England would suddenly become a prey to the first armada that chose to land on its shores, is certainly a most gratuitous and unwarrantable supposition. As for myself, I view these things in a wholly different light, and regard England herself as the QUEEN-BEE of the world, whose own happiness is centred in her industry, wealth, and free institutions;—and which form the boast and glory of her children.

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* Mr. M'Culloch averaged it at $3\frac{1}{4}$ quarters per acre.

Taking wheaten bread as the basis of a class of diet which characterises the highest type of civilisation, I can aver, without fear of contradiction, that no nation uses it to the extent we do in England,—all other high-class diets following, as a matter of course, in like proportion; all of which exercises an influence accordingly on the physical and mental capacities of the Anglo-Saxon, the possession of which has never been doubted, as respects either practical science, commerce, or prowess on the battle-field.

Secondly, as to the love of freedom inherent to the Anglo-Saxon, and his free use of salt;—these, no doubt, seem strange subjects to be commingled and connected; for what can an Anglo-Saxon's birthright have to do with a mere necessary of life? The national spirit is expressive of liberty, independence of action, mind, and character; intellectual and moral enfranchisement; exemption from vassalage, serfdom, priestcraft, concordats, conscriptions, or passports—including also freedom to speak or think without permission of its rulers. On the other hand, no matter what the country or climate, wherever any check or drawback on any of these great mental attributes exists, the mind, the thoughts, the ideas, the very springs and emanations of the brain, become warped and morbid; and no nation can rise above a certain level, or beyond a certain greatness, whose powers are contracted, and whose tendencies are constantly to "make mad the guilty and appal the free." In all these latter conditions, nations and people seem made for rulers, and not rulers for *their* free government.

What, then, has salt to do with this? What part does that play? Why, the very same in our material composition individually, as, comparatively speaking, our free institutions do for the elevation and dignity of the national character. Shakspeare, "Nature's sweetest child," must have had some idea of this, when he wrote :—"Is not discourse, manhood, learning, gentleness, virtue, and liberality, the spice and *salt* that seasons a man?" Are not, I add, the very anxieties, troubles, mental efforts, commerce, ambition, glory, renown,—in fact all inducements to worldly advancement, so much salt to the mind?

Now, the very bases of all our substances and secretions are salts. When speaking on the laws of health and disease, I stated the fact of acids and alkalis having their governing proportions in the system; and I may now observe, that their bases are unions in due proportions of a salt,—no matter which may predominate, whether the acid or the alkali,—which cause either an action or a re-action on the system, the one setting the other free. Now I need scarcely say, that there is nothing so wholesome or so necessary for the human frame and animal juices, as salt taken in reasonable proportions with fresh meats and vegetables; whereas, on the other hand, "Salt too little which may season give," begets a lack of energy and of all the nobler elements of a healthy, moral, and physical existence.

The consequence of a lack of salt, in fact, is, that the human frame and *physique* become vitiated and degraded to a state resembling that of the carnivorous animals;—whence they acquire dispositions of revenge, treacherousness, and remorseless cruelty, strangely contrasted with the arrant cowardice, which they display when not under the excitement of their tempers. In fact, if the use of salt be limited, the material and mental powers will be limited in like proportion; while, on the other hand, if the supply of salt be increased, the bodily and intellectual faculties will be proportionably improved. Indeed, strange as the doctrine may appear to some, I cannot avoid the expression of my belief, that the vast strides made in the development of the mental capacities and varied resources of the Anglo-Saxon, as exhibited in the vast improvements this race has made in the arts and sciences during the last half-century, have been in a great measure due to the removal of the formerly most oppressive duty on salt.

In no country whatever of the world has the universality of increase and advance in every class of the community met with any equal to this. In every country where the limitation of the use of salt exists, owing to the absurd duties imposed upon it by a misguided and money-grasping government, no upward movement of the masses or lower orders takes place. The greatest places are filled with those who can afford to use it, and they alone rise who can thus afford to take the most; for *they* only are fitted for such duties. So much do mighty ends depend on small causes, so much do the greatest powers revolve on the smallest pivots.

Again, there is nothing more poisonous or unwholesome to the blood, when long continued or used in excessive quantities, as salt; nor can I too strongly impress this fact on our own Government authorities, whom I would earnestly entreat, in these days of rapid steam communication, to do away, as far as possible, with the demoralising, unwholesome, and cruel system of supplying salt meat to our army and navy. Even improved as its commissariat has been since the disastrous experience of the Crimea, it is still far below the advanced age in which we live, and will probably continue so while the present routine exists. If it be true that even now a two years' provision of salt meats is always in store in Gibraltar, and that these are used only one under the other,—that our ships' crews are served with excess of salt stores as soon as they get out to sea,—that whatever may be said to the contrary, and however fresh provisions may be used in port, the sea-going ships' crews have still this ancient and unwise treatment, and that it is a rule of diet rather than an exception, which it might alone be made;—all I can say is, that it is a most faulty state of things, and a thoroughly unphilosophical mistake. There can be no saving, where life, and health, and vigour are concerned. If the whole mass of salted provisions now in Government stores, above six months old, were ordered to be pitched into the sea, it would be a great boon and a positive gain to the country. Fresh, or fresher provisions, can be better obtained now and more cheaply than the salt ones, and they might be much more employed than they were formerly for both services. I will allow that there has recently been a great improvement in these respects,—yet far, very far short of the extent required by the exigencies of the service.

There is another Board, too, that deserves strong reprobation on account of its most cruel and pernicious doings;—I mean that of the East India Company, whose continued exactions of a duty on salt in India is one of those things that bring a curse upon their heads, a curse upon their management, a curse upon the native population that they rule. For want of salt thousands die every year. In cursing one another they use this term: "*May you get no salt.*" They are not flesh-eaters, so much as of fruit and rice,—the long-continued use of which, with an inconsiderable proportion of salt, and often none at all, breeds, in some, debility, marasmus, and cholera,—in all, a want of high noble feeling; inasmuch as their blood, unsavoured with salt, begets in them the degraded passions and instincts of the carnivora. In short, the very salt with which they are provided, at a cruelly extravagant price, owing to John Company's monopoly, is so bad, as to be little more than a dark saline earth, so sparingly charged with muriate of soda as to require to be taken in large quantities to do any good.

How absurd, then, is it to say, while condemning these cruel, infatuated, and ignorant people, that they have not been "*true to their salt;*" when, in fact, they have never really had that to which they can be true, or for the welfare of their physical and the advancement of their mental health. Neither Providence nor science are heeded by this, I hope not wilfully, ignorant board, who regard a revenue as the one and only thing needful. That they know the extent of injury they do, or of the lives lost every year through their misguided policy, I cannot for one moment believe; and what makes the matter far worse, India is the only dependency of the Crown of England in which this most iniquitous tax is levied. Of all the countries in the world, too, to levy it in a rice or grain-eating community, where salt constitutes an absolute indispensable to the health of the people, is to me one of the most extraordinary cruelties and absurdities of legislation that can possibly be imagined in a so-called philanthropic and scientific age like the present.

The sea holds its salt in solution, and its coasts can furnish any amount. It is difficult to get it in cold countries, where there is a want of evaporation by heat; but there is no excuse in India. Moreover, as I have observed before, divine Providence, in its care for the wants of animal life, has willed that thousands of miles up the country there should be salt rocks and mountains.

What avails the wisdom of Providence to native populations starving and perishing for this necessary of life, so distinctly provided for them, which they might gather and use as freely as the air they breathe in their almost barren wilderness? Why should this most necessary element of life be withheld from them by their fellow-men? Why have we, in these plains and deserts, rocks of salt distributed everywhere, and to which animals migrate from distant parts to lick, and then return, when satiated, to their native prairies? Is man, I would ask, of less consideration than the beasts of the forest or field? No!—man should not be in any way restricted in his use of salt; and it should always be the purest that he can get, and taken with all fresh meats and vegetables;—because, thus taken, it is a general purifier and nourisher of his body and blood, influencing also, most beneficially, his every mental faculty. Indeed, his condition without it becomes in every way vitiated.

Providence, be assured, has given this element in most bountiful proportions, corresponding with the requirements of animal life; and what shall we say of him, who would deny salt to his fellow-man, or give it so sparingly, that it shall almost amount to a complete withholding thereof? Let such a one be accursed!

Let it be left for foreign kings and emperors to check the free and healthy currents in their subjects' blood;—to be always haunted with treasons, and, if they will, live and reign in doubt of their subjects' fidelity to their thrones and persons, the continuance of their own dynasties, and even feel their crowns tottering on their heads;—to find their subjects for ever breeding rebellions, insurrections, and revolutions through impurities in their blood for lack of salt. Let such nations live and think correspondingly with the laws of despotism, priestcraft, and salt duties, and live, as they are governed, in fear;—but let the Anglo-Saxon be ruled by wisdom and by constitutional laws, based on a sense of duty, both divine and moral, by love and attachment to their sovereign, induced by freedom and the free use of salt.

Whenever salt is denied or sparingly taken, from whatever causes, the worst elements of man's nature are encouraged and induced; and, on the other hand, the more salt is used, the purer is the blood, and the more noble the race, in every bodily as well as mental attribute. Some nations seem never to have advanced, but continue animal, sensual, and cruel. An illustration of this fact, however, will probably make my position better understood.

The character of Eastern or Oriental races appears unchangeable. Its type has been handed down to us from the remotest times; and of this the Old Testament, as ancient history, bears evidence, down to the Christian era,—mediæval and modern history, from that date to the present time, amply confirming that testimony. No amount of conquest or admixture of the Asiatic races with those of the Western world affects it. It is as fixed as the character of their skin, and the instincts of the leopards, tigers, and other animals indigenous to the same climate, whose nature the natives resemble, and whose habits they follow. Each is as much a prototype of the other as instinct and reason can make them; for both the instinct of the one and the reason of the other meet at the same point. Both are, therefore, always to be distrusted; for they are alike artful, deceitful, crafty cruel, despotic, and revengeful; nor does either of them, brute-beast or brute-man, know the meaning of gratitude or ingratitude, inasmuch as such affinities do not exist in them. To expect, therefore, the one and to condemn the other, or to suppose that this latter will not exhibit itself at the first convenient opportunity, is a fallacy. What the brutes in the jungle, the forest, or the prairie are to each other in all their savage nature, so the human denizens of the same climate are among themselves. If the Western element infuses itself amongst them, expecting the development of contrary characters to what these Orientals exhibit among each other,—this shows, to say the least, a great want of philosophy;—such, in fact, as we have lately seen exhibited in British India.

The Mahomedan and Hindoo religions, if religions they can be called, with their gods, their rites, and their ceremonies, are alike disgusting; and the cruelties to which their devotees voluntarily expose themselves for their sake bear evidence of the undying pertinacity with which they are imbued, and the fanaticism with which they cling to them. Shrewd in their generation, they view the various orders of Christians with distrust. They see different creeds, which to them exhibit a want of consistency,—and, when interest is concerned, Christian nature erring, notwithstanding its doctrines and professions.

To amalgamate the Western and Eastern races is impossible. The tiger may show a tameable disposition, and instances have been known of its roaming at large with its master, but none has ever occurred where mutual distrust has not been suddenly and disastrously broken. As civilised Europeans, therefore, we must assert our own superiority and power,—no matter which; and in this there is no compromise, for life is the stake played for.

The monuments, the cave-temples,—nay, the whole country of India, attest the existence of nations and generations of men whose character, usages, and languages have been extinct for centuries; and haply the present people may be the thousandth race, distinct from all its predecessors, who have supplanted former races and nations, in order to establish its own; nor would they act differently now, had not the English conquered them and occupied their territory. Lulled, however, into a false security, they have found to their cost their nature and their type of character unchangeable. If, then, the British are to be their rulers, they must rule as conquerors and despots; for there is and can be no intermediate government. There seems no reason, why the indigenous inhabitants should be treated with less rigour than they ever have been treated and ever would have been treated by their own rulers, except in this respect, namely, freedom for all to pursue useful arts and commerce, with ample protection for all who do right and aid the authority of just laws. No respect should be paid to their rites, their cruelties, or barbarities to each other, practised under the garb of the most indecent and fanatical authority;—nor should their conquerors and rulers tolerate any authority of life and death but their own, under any pretext whatever,—nor seek to proselytise, but by example. If India is to prosper, then, it must be ruled by the Imperial Government. We have there a country as yet quite undeveloped; and, dependent as we are on other countries for silk and cotton, here we have one, that, with European elements fresh infused into it, would yield all we require and what we even now most need. Here, then, is a COLONY, whose treasures are yet undreamt of.

To return from the above somewhat long digression,—I am next to speak of the more quiet condition of the blood and irregularities of its circulation in different individuals,—as, for instance, from excess of heat in one part of the body, or a deficiency of it in another. Thus, if the head be hot from excess of blood in the brain, then a severe headache ensues; or, if there be pains in some other part of the body from the same cause, the feet and hands may be cold, and most frequently are so. If these are reduced to the same general temperature, the headache and pains will subside, without need of any medication; heat being applied to the one and cold to the other, the balance is restored. Exercise rouses this latent heat,—as, for instance, in a perfect state of perspiration; the heat now radiates to the surfaces from the centres, which become cooler, while the surfaces are hotter. On the cooling of the surfaces the centres become warmer, but there is no loss or gain either way, as there is neither more nor less in the system at one time or the other.

A disposition to cold hands and feet is prejudicial to health; and if this be constant, some of the internal organs become disturbed, their functions imperfectly carried on, and even the organs themselves affected; so that it is necessary for health, that the regularity of this heat in the system should be regarded more simply, and, consequently, more philosophically. I have seen instances innumerable of this very cause having brought me to the patient's bedside, when there was no disease whatever to treat. It is owing to these very facts, indeed, that I am striving to point out the difference between actual material disease and its counterfeit. The absence of such discernment only makes things worse; and this is the reason why, as we are not over wise in our generation, the homœopathists, who do nothing, get the credit of doing much,—while, in reality, it is this which makes the discerning physician so soon set his patients right; for he knows what is the true cause.

No class of persons suffer more from a thousand small ailments than young women,—all through cold feet; and yet they will persist in, and court the evil which entails upon them so much misery. Thus in winter they will wear cotton stockings, and thin summer shoes with soles like brown paper; because they fear to appear ill-favoured about the feet, and have not sense or judgment sufficient to wear worsted or woollen stockings, on account of their boots being too small to admit of them, and which they can scarcely wear with even the thinnest fabric underneath. And why, forsooth? Simply, because a larger, thicker, and more sensible boot is calculated to make the foot appear too large!

Oh, dreadful fashion! Cloth boots, tipped with a little piece of shining leather, and only two wafers' thickness between the soles of their feet and the cold, damp pavements; whilst, if driven to cross a street not properly broomed, or getting into public vehicles that stop anywhere without respect to clean or dirty, muddy parts,—and, in the country, the gravel or the stones press into the soles,—you see them picking their way in pain, with feet damp and cold as ice! Can we, under these circumstances, wonder at their pains and aches in head, body, chest, side, or limbs? Yet they think the tiny polished toe of a small, thin boot attracts or commands admiration; it might so in a ball-room, I allow;—but out of doors, I make bold to tell them, that those of our sex not only do not admire them, but often view with pity their simplicity and want of judgment; the result being that, instead of getting admiration from sensible men, who would like nothing better than to have good cause for praising them, they incur the charge of folly for their want of sense.

Too low dresses, too bare an arm, and most uncomfortable, cold-looking slippers are repugnant to all truly sensible minds. There is nothing so bad to both sexes as constantly cold feet:—to females especially it is a fruitful cause of depriving them of half their night's rest; for when they go to bed with cold feet, they cannot, by the laws of health and disease, or by any physical possibility, go to sleep. Hours will pass in bed, before a proper and regular circulation can take place; and however tired they may be, there is no sleep until the warmth is restored, when the little hours of the morning steal upon them, and sleep has barely "steeped the senses in forgetfulness," ere it is time to rise for the duties of the following day. "Oh, for another hour!" they may cry; but the time was lost at first, and the sufferer must rise to fulfil her duties.

Others can afford to lie in bed, and they do so, contracting a habit of lying in bed late; they wake and doze again, and so they lose the healthiest and best part of the day, thus acquiring imperceptibly idle and pernicious habits, with a slow circulation of their blood. Let the feet, then, be warm before getting into bed, for there will be no sleep until they are. If this cannot be done for many reasons, sit up in bed, and be well covered head over ears by the clothes, so as to allow the whole body to be brought into closer contact and under the influence of respiration; because, as all the breath coming from the lungs is pure carbon or heat, a good natural stove can be thus extemporised. Now and then put the head out for a fresh supply of oxygen, and then put it back again, and with the hands chafe and rub the feet, which will, sooner than any other natural plan, make the extremities warm; and when they once become so, then in a dreamy, sleepy state, all curled up and warm, the tired frame will sink down into repose in the natural position of rest.

There is a prevailing vulgar error about heat and cold, clothing, exercise, and the state and condition for sallying forth into the air, especially in cold weather or winter. Children are got ready for the walk, with cloth pelisses, furs and gloves, stockings and shoes, bonnets and veils, all complete. Still the little pale faces and red or blue noses attest their cold conditions. In this state the poor little things are sent out, perishing, in order to get warmth by exercise. Where is the common sense or the philosophy of all this? It takes them a long time to get warm when thus sent forth; and often and often they will come in as cold as they went out.

Now look at the Laplanders, the Esquimaux, or any of these barbarous tribes; what are their habits? Think you that they would ever get warm, if they left their wigwams cold? They make up their fires, get half roasted, and then sally forth with a good stock of caloric or heat; and this they manage to husband and keep up all the time they are out; whereas, when they find themselves (poor ignorant savages, as we intelligent, civilised beings think them) getting at all below a certain standard of heat, they hasten home, knowing well, that if they bear not about them the heat requisite to resist the outward cold, they would perish in sight of their own wigwams.

Let my readers learn a lesson from this true native philosophy:—let them go out themselves and send their children out warm, well-roasted; and assuredly they will keep up this condition. They can then at starting face any cold, and can run about hither and thither, as soon as they get out into the air, instead of moving as upon wooden legs, and hardly knowing if they have feet or not for the first hour;—the consequence of which is, that they become martyrs to chilblains, chapped hands, rough cheeks, and red noses. Send them out with plenty of caloric in them, and they will keep it up. Moreover, when they come in again, the heat and warmth of the room will not cause so great a reaction from cold to heat, or do so much injury to the skin, or produce that burning heat on it which is often painful, and gives rise to many little skin-diseases and eruptions on the face. Take the opportunity also to send them out after a meal; for then the fresh cold oxygen of the air does good and assists digestion by causing a quicker combustion of the elements taken; because oxygen is a great agent of heat, as I have before told you. In fact, the combustion of our food, and combustion of the air in our lungs, are our internal stoves; if they are empty, then what has this free air to act upon but the mucous membranes themselves,—a condition which, though absolutely necessary to them for their health, is yet in their too unprotected state extremely injurious?

It greatly depends on all these little matters, whether their circulation be quick or sluggish, — whether they shall be martyrs to chilblains or be free from them. Clothe according to the seasons, and all parts philosophically, not with summer bonnets and thin boots, with heavy cloth mantles and fur capes. Far better is it to wear a gauze or a net shawl, with a warm bonnet, woollen stockings, and double-soled leather shoes. But why indulge in opposites at all? Case the whole frame with judgment according to the seasons, and commit no violent outrage on common sense in anything you do. Be comfortable and look comfortable. Rouse your latent heat by exercise of every description, rather than by artificial means,—as heat from the former source is much more lasting.

If your circulation be irregular, ask yourselves how many of your ailments depend on this, and do not imagine that it arises from a "*sluggish liver.*" Try yourselves to restore the balance. Why do you want a doctor to tell you this? If there be real disease, and such may really be the fact, go to him quickly, "as a stitch in time saves nine." Be more prudent; and since all the world is becoming more alive to the general promotion of health and the prevention of disease, constitute in yourselves your own little republic, and think of all those apparently trifling matters, which have hitherto been perhaps beneath your notice; for you may be assured, that the greatest interests of worlds, kingdoms, societies, families, and even your little selves, revolve on very small pivots. Great quarrels are sooner made up than small ones; great diseases are always attended to at once and are cured, while many minor ones harass and perplex like small quarrels.

As you would avoid, therefore, petty squabbles, so also avoid petty ailments, setting then, as soon as possible, right; and remember that the greatest sufferings, mentally and bodily, arise from the smallest exciting causes.

# CHAPTER XX.

## BATHS, BATHING, AND ABLUTIONS.

Baths and bathing distinct from ablutions for the sake of cleanliness—Writers on bathing, and their motives—Indiscriminate bathing injurious rather than beneficial—Indications of good and bad effects from bathing—Bathing in marine or mineral waters, when useful or the reverse—The tongue an index to the physician in recommending their use—Evil consequences of injudicious bathing—Hot baths enervating and dangerous—Tepid baths preferable to either hot or cold—Times and modes of bathing—Foot-bathing and its abuses—General conclusions.

The use of baths and the practice of bathing are things quite distinct from those daily and very necessary ablutions that we make for the sake of cleanliness,—a virtue which we English, in the words of the old proverb, rank as next to godliness,—and cannot be omitted without incurring at once personal discomfort and liability to disease. It by no means follows, that a man who never bathes is personally unclean, any more than that the fisherman on the coast, who spends half his time semi-immersed in the flood, is a model of personal purity.

Writers on the subject of bathing have, during late years, read, or rather written, the English public many a homily on their neglect of it, and have instanced the examples of the southern nations on this point, to shame us into a custom more suitable to their notions and climate than our own;—nor, inasmuch as these writers are in most instances the proprietors of bathing establishments, need we much wonder at their advocacy of a system that is so conducive to their own pecuniary interests. What they have *not* told us with regard to these southern nations, whose example they so vauntingly hold up for our imitation, is the vulgar truth that they are not so clean on the whole as we are, that they rarely change their linen, even when they have linen to change, and consequently are driven to the use of the bath, literally as a refuge from the vermin and other causes of irritation which they owe to their uncleanly habits and customs, as well as to the peculiar character of their climate.

The mania for bathing, plunging, and slopping, which was so generally prevalent a few years back, is now happily on the wane. It was an imported mania, brought into this country by a multiplicity of travellers, who, having conformed to the practice of the people among whom they sojourned, and probably derived benefit in those countries from so doing, conceived it their duty to continue the practice and to recommend it to their neighbours at home. They forgot, however, or else they never took into account, the different circumstances under which Englishmen live; and they left out of their calculation a few common-sense principles and facts, of which I shall take the liberty of reminding them.

First, then, I would submit to them and all my readers, that indiscriminate bathing and plunging of the whole body is not a natural habit in this country. We are not, like the inhabitants of the South Sea Islands or the coast of the Mediterranean, an amphibious people, able to live as well in the water as on land. Islanders as we be,—nevertheless, not one in three even of our seamen can swim, and, perhaps, not more than one in thirty of the aggregate adult male population, that is to say, not more than half a million at the very most, out of the 10,223,558 persons composing all the males of Great Britain at the last census;—so that it is to the highest degree absurd to set us down as a nation of bathers and swimmers. Though this fact is doubtless to be regretted, it is nevertheless valuable, as an indication of the popular estimation of bathing. As a sanitary practice, and viewing it in a common-sense light, we can come to no other conclusion, than that the amusement of bathing and learning to swim does not agree with the mass of the people.

The reason of this is obvious:—we have in England, on an average of years, three or four distinct climates in every twenty-four hours. Were the water of our seas and rivers to vary in temperature as much and as rapidly as our atmosphere, it would not so much matter, and we might probably bathe in it with impunity. This, however, is not the case; and it has happened again and again, that a man who has bathed with advantage in the morning, has caught a deadly chill by plunging in the same stream later in the day, or *vice versâ*, owing to some change in the temperature of the atmosphere. Such things as these have exerted a powerful effect in convincing the people of a fact well known to every medical man who has paid due attention to the subject,—that bathing is not in all cases beneficial, that there are certain constitutions to which in this variable climate it is never beneficial, but often hurtful, and that it ought never to be indiscriminately recommended or pursued.

The question naturally arises here,—"How are we to know when bathing is beneficial, and what constitutions it suits?" I answer, by attention to the following rule:—"*If it invigorates and excites the activity, and imparts strength, together with a disposition to use it, you may be sure that it is in all respects beneficial.* But mark:—it is not true that, because, after being chilled in a bath, you are able by rubbing, scrubbing, towelling, and kneading, to obtain what the skin-doctors call "the return glow," it is therefore beneficial. You may be told that it is; but they are possibly deceived themselves, as well as deceiving you,—for even this "return glow," as it is termed, may be produced on the surface, and the skin got into a warm comfortable state, and still you may receive serious injury from the bath. Notice your sensations after leaving a hot or cold bath, whether of salt or fresh water;—and see, whether or not you be inclined for vigorous exertion. If not, and you feel heavy, giddy, sleepy, lazy, or have a headache,—in either of these cases, take my word for it, your bathing has done you no good, but rather harm, and you cannot continue the practice without seriously endangering your health.

On the other hand, let me not be supposed to condemn the practice of bathing altogether. It is only against its abuse, and the misapprehension of its real value, that I am now contending. There are multitudes of persons with good and hardy constitutions to whom the bath is a genuine luxury, who will swim for miles in sea or river, and always come out refreshed and invigorated ;—and there are persons also,—not a few,—of delicate constitutions, who yet gain strength and refreshment from the bath. They are right, doubtless, to obey what with them is almost an animal instinct and a habit of their nature; but they are not to be held up as examples to others ;—for I know from melancholy experience, that a persistent violation of the rules above laid down is pretty sure to be followed by the worst results.

It is a common custom with medical men to recommend to certain of their patients (those who can best afford it), sea-bathing, or bathing at mineral spas, during certain seasons of the year. Nothing, however—if at least experience is to be relied on—is more uncertain than the sanitary effect of such periodical visits to the sea-side and mineral spas. In the majority of cases, it is demonstrable that the benefit really derived is mainly due to the change of air, change of scene, change of diet; because it often happens that, as soon as the patient becomes acclimatised to the new atmosphere, then all his old symptoms return, and he is obliged to have recourse to his old remedies. Meanwhile, we deny not for a moment, that both sea-air and sea-bathing are valuable remedial agents, when properly applied, and to the proper subjects. The mischief is, that, because they are supposed to be pleasant and agreeable remedies, they are applied indiscriminately to all who can *afford* to take them, without reference to constitutional differences.

If it be asked, who are those to whom sea-air and sea-bathing are advantageous? I reply :—*Those who have in their systems a peculiar condition of the acid secretions, requiring an additional stimulus to promote their excretion.* Thus, those who have a strumous or scrofulous tendency, and have enlargement of the glands, will derive benefit from the sea-air, and that not unfrequently in a manner at once marked and decisive ;—because the air of the sea-breeze contains more ammonia and saline particles than are to be found further inland, and the skin constantly, though imperceptibly, absorbs those elements, which are the virtual agents of cure in all such cases. Persons thus afflicted may bathe frequently in sea-water, with great advantage, provided only, that — agreeably with the rules above laid down—they are invigorated by the bath, and not reduced by it to a state of lassitude.

With regard to patients, on the other hand, who have no such condition of the blood, no secretions that require correction by saline agents, there is no colourable reason to be assigned, why they should be sent to the sea-side or salt-spring in preference to any other place inland. There are, however, certain conditions of the system, which can probably only be discovered by Glossological indices,—conditions under which exposure of the body to the full influence of a bath would be certain to prove injurious. When the tongue, therefore, is preternaturally clean and rather red, without the slightest disposition to a furred state, there is great reason for caution in the use of baths.

I have elsewhere observed, that in such cases even too cold an atmosphere is prejudicial:—how much more injurious, then, must be the perfect denudation of the body, and the plunge in the sea! In all such cases, indeed, none of the mucous surfaces throughout the alimentary canal are in a condition to receive without injury the shock of so quick a determination from the surfaces to the centres, nor the corresponding re-action from the centres to the surfaces. The consequence of the latter actions is,—that nausea, even amounting to actual sickness, follows this imprudence. The most distressing symptoms, such as indisposition to take food, or when taken, an inability to retain it—in short, an endless train of evils—are certain to follow conditions like these.

On the other hand, persons with a close-piled or furred tongue, yet not overloaded or very foul, or else a flabby one with few papillæ—denoting general want of energy, and a sluggishness of action, particularly in the glandular system—may derive great benefit from sea-bathing and sea-air, because there is a dormant state of those acid elements that are requisite to maintain health and vigour. If the tongue, then, be consulted with reference to the use or disuse of the bath, many errors, many disappointments, much expense and suffering, might be avoided. Science and certainty would guide the helm, and not leave health to the all-powerful dominion of fashion, which in our day too frequently determines everything, even to the great interests of life itself, and which has unhappily destined many a fair patient to an untimely grave, that might have escaped, had it not usurped the place of science in medicine.

How many imaginary invalids, again, are there, who constantly indulge in the use of hot, vapour, and shampooing baths, solely from a relish for the luxurious feelings they impart. Such persons need not be surprised, if their practice results in predisposing their constitutions to disease, and in the end weakening the system. The reckless use of hot baths (become so common, even among the uneducated classes, since the new Bath and Washhouse movement) is a most pernicious absurdity,—as the skin cannot radiate heat in a warm bath, because the heat is thereby driven to the centres ; and, however much they may prove beneficial in some bodily conditions, they are prejudicial in others ;—all which is reason sufficient, why hot-bathing should not be resorted to without medical sanction. Persons, likewise, who perspire freely, are apt to resort with equal freedom to the hot bath,—an egregious error on their part, since all that they really want is frequent ablution or washing—not bathing—and a frequent change of linen.

Whenever bathing is really necessary, it is wise—in this country, at least—to prefer the tepid bath to either the hot or cold. Those who have dry skins must be careful, if they bathe, to procure a perspiratory action after the bath ; as by these means the capillaries (or connecting channels between the arteries and veins) are set in action, both at the centres and surfaces of the body,—relief being in this way often obtained from chronic rheumatism, obstructions in the circulation, and other harassing affections of an analogous nature. In a word, if bathing is ever to become a habit with the English, I am persuaded it will be so by the use of the tepid,—not the hot or cold bath.

Once more ; when bathing is desirable, let it by all means be resorted to only at proper times and under proper conditions of the body. Never take a bath after a full meal; as a mistake in this particular may, with short-necked, stout, full-blooded subjects, produce paralysis or apoplexy. Let the body, too, be at a moderate temperature—neither too hot nor too cold; and whenever the hot bath (above 90° Fahr.) is prescribed for either sex, *let it be always taken in the presence of an attendant.* The shower-bath is often prescribed for those to whom the plunge-bath would be too severe an application; but the observation I have made above will apply also to this. In fine, the patient must learn to judge for himself as to the fitness of this or that mode of bathing. As for shower-baths with cold water, they most unquestionably cause too severe a shock; and the cases are comparatively few, in which they are required; whereas, with tepid water, and the patient wearing an oilskin cap, they may prove agreeable and beneficial. Of course he will modify his practice accordingly.

A word here as to ablutions. If the English are (as I believe them to be) the cleanest people under the sun, it is not so much from repeated bathing, as from regular ablutions and an abundance of clean linen. Still they are open to reproof on this score, and for this reason,—that the general attention is directed far too exclusively to the face, head, and hands, to the neglect of other parts of the body. Now, the entire person should frequently, aye regularly, be washed; and the aversion which many feel against perfect denudation is no excuse for the neglect of perfect ablutions, which, if the reader so pleases, may be performed piecemeal, with sponge and soap—done, too, very rapidly, without a shock or the risk of a chill.

Our popular plan of *feet-washing* is one of the most absurd practices imaginable. In most cases, this washing of the lower extremities occurs only once, at most twice a week, when they are plunged into water as hot as can be borne, up to the middle of the leg. Now, suppose only that the same plan were pursued with our hands—that they were not washed for a week, and then plunged into seething hot water up to the elbows for ten or twenty minutes—to what condition would they soon be reduced? Why, just to the same half-palsied and tender state in which most people's feet are at present.

Why on earth, I would ask, are the feet to be treated differently from the hands? Were we to treat them like the feet, I verily believe they would be subject to similar ailments. With respect to tender feet, I have often been consulted for them; and my experience has been, that in nine cases out of ten they have resulted from the absurd and injurious practice of periodical parboiling in very hot water. Let this, then, be at once abandoned; and let the feet be cleansed instead with soap and water at the same temperature as that used for the rest of the person. Do this, I say, good reader,—eschewing at the same time, with a sort of holy horror, all cramping, tight-fitting boots or shoes; and, take my word for it, you will no longer be troubled with tender feet.

To females especially, the practice of frequently bathing the feet in hot water is most injurious—sometimes even dangerous. They often resort to it in the hope of promoting certain constitutional actions and secretions, but the result that follows is the very reverse of what they intended; while, at other times, when such actions are and ought to be in abeyance, they will be brought on by the hot-water foot-bath—frequently attended with results of a most distressing and disastrous nature. In fine, the only proper mode of treating the feet is to wash them briskly with soap and sponge every morning before dressing,—but never immersing them,—rubbing them dry with a *coarse* towel, and at night dry-rubbing them before retiring to rest.

The above very general remarks on baths and bathing will, it is hoped, be found sufficient for the reader's guidance. The great lessons that I desire to inculcate are as follow:

First, a mistrust of all hydropathic empiricism, that would find a solution of all the difficulties of human ailments in bathings and plungings in fresh or salt, hot or cold, water;—

Secondly, that the reader is here provided with ample means or directions for judging how far bathing suits his own case in particular—due regard being had always to the strictest personal cleanliness.

# CHAPTER XXI.

## NURSES AND NURSING.

Education requisite to make a good nurse—Nursing, woman's peculiar mission—Importance of good nursing to promote recovery from illness—The portrait of a good nurse—Quiet indispensable in the sick-room—All fussiness to be avoided—Bedroom to be made as cheerful as possible—The patient never to be waked to take medicine—Position of the patient to be always easy to himself—Light to be soft and subdued—Temperature—Ventilation—Advice on dressing wounds and sores—Cookery of the sick-chamber—Remarks on the choice of a nurse—Civility and politeness indispensable—Proper condition of the sick-room—Small beds recommended—No unnecessary furniture to be allowed—The author's experience as a nurse.

Whenever sickness enters a house, a good nurse and proper nursing are of the highest importance. Unhappily, however, there are few subjects less generally understood. The education of our women in the present day is the very reverse of that which prevailed among our forefathers. In relieving them from the duties and control of the sick chamber, and in leaving the performance of these duties to mercenary hands and hearts, we have committed, it seems to me, a great mistake. There is no right-minded woman, who, on seeing those most dear to her languishing in pain and sickness, does not deplore this defect in her education, and who would not willingly at such an hour sacrifice all the accomplishments she has studiously acquired, and at no trifling expense, simply to be possessed of the ability to alleviate suffering, and soothe the tortured hours of a beloved brother, sister, husband, parent, or child. It is to diminish regrets like these, by instructing my fair readers in matters relating to the management of the sick-chamber, that I write this chapter.

The mere attendance on a sick person, giving him his medicine, keeping him clean, handing him his food, and doing what is generally done in the sick-chamber, does not in itself constitute the whole, or even the essential parts, of good nursing. Any one can do this. True nursing, believe me, is a far higher attribute. Woman has doubtless been expressly chosen for this vocation, on account of her natural gentleness, her loving, affectionate disposition, her total devotion to, and her self-sacrificing dependence on man, besides her many other virtues. Yet what are these without education? Take the whole corporate body of those who go to the houses of others for the purpose of doing what members of the patient's family feel too irksome, too fatiguing, or too troublesome, on the one hand; or, on the other, whose services are called for when it is absolutely indispensable that the sufferer should have the undivided attentions of some one specific individual. Now where, I ask, will you find the hearts of hirelings going with their hands, their feelings with their office, their knowledge with their duty? In some cases I know you may; but these are only rare exceptions.

Knowledge is requisite to make a good nurse; and *a specific, well-directed education* is as necessary for this as for other more generally acknowledged pursuits of life. In the first place, then, recovery from disease often depends quite as much on the skill and care of the nurse as on that of the doctor; and if any medical man conceives that he degrades himself by condescending to the level of a first-class nurse, he merits my compassion, and has it. A nurse worthy of the name will possess a cheerful disposition, an inexhaustible stock of patience, a habit of self-denial that no provocation can ruffle, and withal great firmness, amounting even to gentle compulsion (for even this may at times be needed), with an approving eloquence of voice and manner not to be resisted by the patient. She should possess, moreover, a continued persistence and perseverance in pleasing her patient, and as early as possible gaining his or her confidence; because this is of the greatest importance to both, but especially to the latter, who can only get this by a knowledge of the other's general attainments.

If to these moral qualities she add an agreeable figure and a face pleasant to look on, so much the better;—and, moreover, she should never be above receiving instruction at all times, but on the contrary always willing to learn;—for both the physician and the nurse should ever deem themselves students of the great book of Nature, and learners in a school where knowledge is never perfect. As to her personal habits, she should be neatly and modestly clad, clean and sweet in person,—without finery of any kind, (which is a mockery to the sick chamber,) and at the same time equally free from sluttishness, which is an insult and annoyance to the sufferer;—for, having nothing else to employ him, he is ever apt to dwell on trifles, and remember them, too, to the prejudice of his nurse. She should be able, likewise, to make readily such things as gruel, arrowroot, broths, infusions, and diet-drinks, without the need of depending on servants; and she should be able, also, to read aloud, intelligently, and distinctly, to amuse her patient, *if requested.* Lastly, she must be willing to set aside her own convenience, comfort, and natural rest, for the welfare of her charge, and make it a point of conscience so to do on all occasions.

Now, I would inquire, how many of the above indispensable qualifications shall we find in hired nurses—those to whom we are in the habit of delegating the charge of our sick friends and relatives? So far as my experience goes, they are deficient in almost every particular; and it almost invariably happens, whenever a serious case occurs, that I have two things to do,—namely, the patient to cure, and the nurse to instruct, in order that my endeavours may not be defeated.

The first duty of a nurse is, to gain the confidence and good-will of her patient. This she can only do by the display, on her part, of good temper, cheerfulness, and constant kindness,—to which I may add personal purity;—for invalids have generally remarkable discrimination in this matter, and will detect a sour scent from unchanged linen, or the spirituous breath of a dram-drinker, more keenly and quickly than a person in health. So satisfied am I of the importance of this, that, in my own practice, if I find a nurse fail to conciliate the patient, or to be a dram-drinker, I make a point of recommending her discharge, as she is an obstructive,—not a help to convalescence.

In the management of the sick-room everything is to be done with gentleness and order. There must be no slamming of doors, no clattering of glass or crockery, no thumping and lumbering about of furniture:—whatever is to be done must be done discreetly and without noise. Even a window-blind she should not draw down too hastily, nor should she dash aside the curtains too rudely, or pull up the bed-clothes with a jerk. Indeed, the slightest noise is in some cases a torment to the patient; and ere now it has happened, that a sick man has been driven into delirium by the rustling of the nurse's silk gown. Such clothing, therefore, should never be worn, as it is likely by its noise to betray the wearer's movements. For the same reason, shoes that creak, rattling bunches of keys, and jingling ornaments, should be banished from the sick chamber. A clever nurse, again, will, if necessary, contrive to arrange the fire without using the poker and tongs, and not be above putting on an old glove to make it up quietly;—nay, she will do anything rather than disturb the nerves of her patient by publishing such operations.

Some persons have a very heavy tread even with the lightest shoes; and though they make no noise, yet by treading on their heels they shake the room at every step. A mincing, tiptoe gait is not only awkward, but unnatural and annoying, —giving, moreover, a disagreeable up and down motion to the body. A nurse should step lightly on the whole surface of the foot, keeping her body evenly balanced, so that she may appear to glide along the room rather than walk. Above all things, she should be particularly attentive, when the doctor is present, to listen to all that he may ask his patient and to all that may be said by either,—unless, indeed, there should be anything which it is important she should *not* hear. At such interviews as these, directions will suggest themselves to the medical man; and it is the nurse's duty to hold herself in readiness to receive, and act on them as soon as he is gone. Indeed, if these are not attended-to at the time, the doctor may, perhaps, only remember them when too late, after he has left the house. Such omissions are very often caused by the nurse's fussing about the room as soon as the doctor comes in,—poking the fire, smoothing the bed-clothes or toilet-cloths—and doing, or pretending to do, something or other that might as well be deferred till after he has left; and thus his attention is distracted, while the nurse, on her part, loses from inattention what it is most important that she should know.

When, however, I enjoin all freedom from useless noise and bustle, I would most distinctly advise my lady-readers not to introduce into the sick-room any parade of solemn precaution, any mysterious whisperings, any stealthy and tiptoe movements and dumb motions,—anything, in short, that might alarm the invalid and make him fear or suspect that he is worse than he really is. What he would naturally expect to hear, let him hear by all means; for a conversation in a low, audible voice, will do him no harm, whereas a series of mutterings and whisperings, which he strives to hear and cannot, would irritate his temper and perhaps do him serious injury.

If the patient should request the nurse to read to him—which every one undertaking that office should be able to do with fluency and intelligence—she should select such matter as will amuse or interest him, taking the precaution to let him hear nothing of a painful or exciting nature; nor should the reading be continued for an inordinate length of time. Should he feel languid and desponding, the reading of a simple, unaffected prayer may produce consolatory effects; but, generally speaking, the nurse should never obtrude religious exercises on her charge, except at his own request and invitation. A good nurse, indeed, has a mighty influence; for the mere sight of a kind, sympathising nurse will often do the patient more good than all the doctor's medicines, and he will lie quiet for hours, watching her, as she plies her needle at his bedside, when otherwise he would be restlessly tossing about, thus only aggravating his complaint. The most trifling thing will often suffice to interest the sick; for when the body is prostrated in utter weakness, the mind becomes unmanned and almost childless,—a fact which not only the nurse, but the friends and visitors of the sick man would do well to remember, and refrain from pestering him with questions and allusions to business, with which he is in no condition to grapple.

A clever nurse will keep the sick-chamber neat and tidy, free from all appearance of litter, and remove, as soon as done with, all empty phials and medicine bottles, with all the other *et ceteras* of the doctor's shop. Neither will she be always stirring about the room—for ever setting things to rights;—for nothing is so worrying and unpleasant to an invalid as a marching and counter-marching, an incessant motion and restlessness in a nurse. As soon as certain duties are attended to, let the room be quiet, and the house too; and let her take up such a position, that she can properly watch her patient without placing herself directly opposite and constantly staring at him, which is both rude in herself and very unpleasant to the person on whom she attends. Again, should her charge want anything, she should gently lay aside her work and quietly proceed to do what is required, not jump up in haste, with an air of bustle or importance unsuitable to the necessity or the occasion. The nurse may at her discretion place flowers within the patient's view, or any other pleasing object on which he may like to gaze,—always taking care, however, to remove all plants at sundown, as they give out carbon in the night-time, and are then hurtful in a sick chamber. She should be constantly careful, also, that the ventilation of the room shall go on continually; and whatever measures she is obliged to take to bring this about, she will so order them, that her patient shall never be subjected to the action of a current of air.

Above all, in doing whatever is necessary, the nurse should unite firmness with gentleness, and never allow herself to be seen hesitating as to the line of conduct that she ought to pursue; and, should she really feel at a loss how to act at any time, the last person to be made aware of such a fact is the patient. Everything, then, that can be done in disease by any person connected with the sick-chamber, is simply to be "the handmaid to Nature;" for Nature cures more frequently than art, and oftentimes even against it. A nurse should perfectly understand, also, that diseases of different characters require as great a variety of nursing as they do of medical treatment. Her duties, however, though varied, are nevertheless very simple, and may be summed up in one general direction:—GIVE UNDIVIDED ATTENTION, AND THINK OF EVERYTHING THAT CONCERNS YOUR PATIENT.

In administering medicines, the nurse will, of course, most implicitly obey the doctor's orders, and see that the doses prescribed are taken at their proper intervals. In this, too, she should be especially observant of cleanliness. Medicines of any kind are in themselves sufficiently disagreeable to the palate, without being made more so by being tendered in an unclean vessel. The cracked earthenware cup of the poor or the crystal wine-glass of the rich, if it contain medicine, should be free from both dust and stain when proffered to the lips of the sufferer; and when the potion has been drained, the vessel should at once be cleaned and put out of sight. Such details as these may appear trifling; but were they really unimportant, they would not be mentioned here.

There is one exception to the general rule in administering the medicines ordered, an exception in favour of Nature, who always does far more towards a cure than art, however clever the doctor may be. This exception, indeed, should constitute an invariable rule; and, in order the more strongly to impress it on my readers' minds, I will print it in italics: "*Never wake your patient.*" If he be asleep when the hour arrives for taking his medicine, let him sleep on by all means, and see that he is not disturbed. The medicine prescribed *may* do him good; but, be assured, the sleep he is enjoying will do him far more good than all the medicines in the pharmacopœia. Many a sick man has been slain by an ignorant nurse waking him from sleep to administer medicine; for, be it recollected, that prolonged sleep for ten or twelve hours proves in some cases the happy crisis of a malady that might otherwise have been fatal. Fevers, for instance, will often produce lengthened vigils from unnatural excitement. Many days and nights will be passed without the patient even closing his eyes, and then a sleep of many hours may succeed and haply prove a favourable crisis of the disease. On awaking, the fever may have gone, leaving an utter prostration and debility which calls for the immediate administration of a nourishing diet.

How necessary, then, is it for the nurse to know the evil of awakening such a patient and thus frustrating Nature's good intentions, and on the other hand to administer support without waiting for the doctor to order it. Nourishment taken at such a time is time saved;—withheld, it is lost. Neither infants nor children should ever be rashly awakened from sleep, even in health; and *when they are ill, it is imperative that they should not*. A nurse properly trained will at once know how to distinguish these cases, and act, therefore, on the well-recognised fact, that "tired Nature's sweet restorer, balmy sleep," is better than any other restorative whatever that the medical man can supply. Of all the follies committed in the sick-room, however, that of waking a patient just to give him his medicine is the greatest; for in no case whatever should the regularity enjoined by the doctor be allowed to interfere with the curative efforts of Nature herself, of whose agents sleep is incomparably the most beneficial.

A nurse, again, should be a careful observer, should ever be on the watch, and, as far as possible, anticipate the wants and necessities of the patient. She should know at a glance whether he is lying in bed in such a position as to be most comfortable and free from pain, with a power of breathing freely; nor should she require to be told when this is not the case, but see the defect and remedy it at once. There are always indications about every patient, that show whether his position of rest is easy or not; and the quick eye of the nurse should be able to detect this. Again, as to the necessary amount of covering on the bed, for warmth or coolness;—in some cases, as in chronic rheumatism for instance, a patient wants half a dozen blankets over him, while in others, as in fever, a single sheet is almost too much. Of these extremes, and all that lies between them, she should be able to judge for herself, and treat her charge accordingly.

Once more,—as to light,—the quantity of light admitted into the sick-chamber is a matter of immense importance to its suffering occupant. As light is an element of cheerfulness, it is on that account desirable, that as much should be admitted as the patient can bear without inconvenience; and it is desirable for another reason also,—namely, that light acts chemically in purifying the atmosphere. Still, this light should be soft and subdued, not glaring; and care should be taken, that bright, lustrous objects, such as crystals and looking-glasses, should be kept out of the patient's view, and that neither the flame of a lamp or candle, or its reflexion in a mirror, be suffered to annoy him by flashing across his field of vision. In ophthalmia, in diseases of the brain, and even in some conditions of high nervous excitement, the room will have to be nearly darkened. In such cases as this, the nurse will follow the doctor's directions; and she should recollect as well, that the exclusion of light does not necessarily involve the banishment of fresh air.

Of equal importance with the degree of light is the temperature of the sick-room. For average diseases, about 60° Fahrenheit would appear the suitable mean; though in cases of congestive action the temperature may be somewhat below that point. The ventilation should be free and continuous, and all unpleasant smells summarily got rid of; while in inflammatory cases—especially those of mucous inflammations, such as bronchitis, &c.,—a higher temperature is required, yet, at the same time, with perfect regard to ventilation and the purity of the air.

A word now on what are generally considered the ordinary duties of a nurse. First in the list of them is a scrupulous attention to the cleanliness of the patient;—for without this all other attentions are mere mockery. In short, there is no office devolving on woman that requires more diligence and self-devotion than this. These duties, however, need not be particularised; and I may observe, also, that they differ materially in different disorders. In every case, however, their performance is imperative,—any neglect thereof at once betraying itself and blasting the reputation of the offender.

Next, as to the dressing of wounds or the application of external remedies, she should have a quick eye, a steady, well-nerved hand, and a spirit that will be equal to all occasions, and never be upset by the spectacles of suffering and distress that she may be called on to witness. In fact, she cannot afford to give way to her feelings; for otherwise how could she perform her painful functions with the requisite tenderness and efficiency? Her touch, too, should be light and gentle; for wounds and sores are hard enough to bear of themselves without being made unnecessarily painful through heavy and clumsy handling. Under a good and clever nurse, a patient will look forward to the fresh dressing of a wound as a source of relief and comfort, while, under a clumsy or unkind one, he will dread its approach, as bringing a renewal or aggravation of his sufferings.

Another piece of advice, also, is worthy of attention,—namely, that the new applications should always be perfectly ready before the old ones are removed, so that the air may not act prejudicially on the raw surfaces, which cannot bear exposure; and in removing a poultice or dressing from flapped wounds, care should be taken that it be gently drawn away in the direction in which the lacerated integument is lying, so that the wound may not be disturbed or opened. Too much tenderness, care, and precision cannot be bestowed on all such delicate operations.

Next, as to the cookery for the sick-chamber. The nurse is emphatically the sick man's cook; and, if she does not know how to perform this function well, whatever her attainments may be in other respects, she will be but ill qualified for her office. The appetite of a patient is proverbially transient and capricious, requiring to be coaxed, humoured, and indulged in a variety of ways, to save it from extinction altogether. A good nurse will, in this respect, learn to identify herself with the sick man. Whatever she prepares to tempt his appetite—be it gruel, sago, arrowroot, broths or soups, light puddings, or aught besides—she will not only strictly adhere to the doctor's directions, but respect, as far as possible, the prejudices and whims of the patient, and be cautious to present everything in a pleasing, appetising shape, so as not to disgust his relaxed and tender stomach by the sight of masses of food adapted only for those in the vigour of health.

These may, at first sight, appear trifles, but they are really of prime importance; for it often happens that cures depend on the ability to take nourishment at a certain crisis,—in default of which a relapse occurs, which would not have taken place at all, but for the injudicious conduct of the nurse in this particular. In the preparation of food for the patient, a good nurse will learn to rely on herself,—not trust the servants of the house; and she will remember, that nothing is good enough for a patient which is not specially adapted to his enfeebled powers of digestion. She should direct or superintend every culinary operation in which her charge is interested, and should possess sufficient influence to control the acts of her assistants.

A few words, now, as to the choice of a nurse. As a rule, the nurse should be neither too old nor too young. Many young women, it is true, have by unfortunate domestic experience been trained *perforce* into very capital nurses, owing to having passed a good part of their lives in attendance on the sick-couch. Nevertheless, their very youth is in itself, in some degree, a disqualifying element, as it deprives them of that influence which maturity alone can give. Be that as it may, the earlier the training, (if it be really good,) the better;—for nurses, like doctors, are rarely disposed to learn much after attaining their fortieth year;—by which time, we may well suppose, old habits have become too firmly fixed to tolerate innovation or change.

Lastly, in choosing a nurse, preference should always be given (other things being equal) to her in whom civility and the natural politeness inseparable from a benevolent disposition are combined, as inherents of nature, and not put on for the occasion. Such a woman as this will be invariably kind, discreet, and self-sacrificing under all the arduous duties of her station:—she will bear and forbear, and never sounding her own praises, will earn and deserve those of her employers.

In selecting a nurse for an insane patient, personal appearance is an element of the first importance. The insane have no self-control:—they will laugh at a fat, dumpy-figured nurse, however good she may be, and in their paroxysms of abuse will mock at and ridicule any personal peculiarity or defect, harp on it continually, and, in some cases, imitate it with powers of mimicry that we could admire when employed in a better cause. Such a condition of affairs is, of course, adverse to the sedative, soothing treatment, from which alone a cure is to be hoped for. The nurse of the insane, therefore, should, if possible, possess a commanding figure, an authoritative voice, and a noble, even handsome, countenance. By these qualities the poor maniac is generally awed into subjection, reverence, and docile obedience; and when to these are added a gentle disposition and tender sympathies, the reverence and obedience become affection and gratitude, and the best results ensue. For the average of patients, however, personal appearance is not of so much importance; and a nurse need not be condemned for a want of good looks, as long as her presence is not absolutely forbidding and her manners vulgar and ungainly; for the kindest heart often beats in a person that has but a very ordinary face.

Let me conclude with a few words in the nurse's favour. If you have found a really good and trustworthy one, take care rightly to appreciate her value, and be not cruel or over-exacting with reference to the strength she may fairly be supposed to possess. Remember your obligations to her, and be sure that services like hers can never be properly rewarded by mere money payments; for no money can repay them, when heartily performed. You will do well, therefore, to reciprocate her kindness and good-will; you will see that she wants for nothing that your house can afford, or that it is proper she should have: —above all things, you will see that every third night at least, she enjoys her natural rest in bed and undisturbed. If you neglect these precautions, you will assuredly punish yourselves by disabling her, and thus deprive the patient of services, which, for all you know, might prove his salvation.

In this by no means unimportant chapter, it may not be amiss to mention what should be the state and character of the sick-room. In such illnesses as may be called *casual*, this is not so much to be considered; for the usual sleeping-room may reasonably be supposed sufficient for the occasion. In protracted illnesses, however, or those that result from accidents, where confinement is a necessary result, attention must be paid to the character of the apartment in which the patient will have to spend so many long and dreary days and nights. This, then, should be the most airy, most cheerful, and best ventilated room in the house,—not over-furnished, either as regards chairs and tables, bed-curtains, or window-furniture,—all excess of these beyond what is absolutely required being in the way, preventing the free access of fresh air and proper ventilation.

First, then, as to the bed to be used in any long or permanent illness. None are so awkward as the large four-post bedsteads with their heavy curtains, draperies and tester, or the large French or Arabian bedsteads with their cumbrous footboards; for such accompaniments are sure to obstruct the free currents of air, and offer hindrances, as well to the comforts of the patient as to the necessary operations of the nurse. These, then, should be removed, and a small bedstead substituted, similar in size to that used in hospitals. It is easy to extemporise certain head-curtains, to prevent unnecessary draughts. This sort of bed enables a nurse to lift the patient from either side with her whole bodily strength; and, should the case be one resulting from an accident, it offers facilities for two persons to lift him up bodily by the lower sheet,—permitting a third party to arrange all that is underneath, and replace him with safety. It facilitates also the performance of all the duties required by the patient, whether as regards attention to his natural wants, the ablutions of distinct parts of the body, the dressing of wounds, or regulating his positions of rest, &c. In fact, the four-post and French bedsteads obstruct all the necessary operations of the sick-chamber by taking up much useless room. They fatigue the nurse very unnecessarily, cramp her strength by compelling her to use it at a mechanical disadvantage, and thus often causing distress to the patient.

The whole apartment, in fine, should be neatly and orderly arranged, so that, when convalescence takes place, and two or three cheerful friends may wish to see the patient, or the patient them, their visits may not obstruct ventilation. The size of the room should always regulate the number to be admitted, or the time they are to stop,—never forgetting that their own exhalations and expirations furnish additional impurities to the atmosphere of the room. After confinements, or in severe illnesses, nothing can exceed, at times, the injudiciousness of friendly visits, which, though meant for kindnesses, are often the reverse ; and, unless the doctor be a practical man and firmly forbids such heedless gossiping, he may chance to have a case that will give him great anxiety, if it does not cause the loss of his patient. In serious illness, the greatest kindness which friends can show is, simply to call and ask how the patient is, without entering the house; for, if they would but give the matter a thought, they might be certain that there is quite enough to be done by the family without being interrupted by inquisitive, gossiping loungers.

All unnecessary furniture having been removed, and that which alone remains being orderly and tidily arranged, with an appearance of taste and comfort, the patient's gaze rests upon the whole with an air of satisfaction. Not so is it, when all is in disorder. No unpleasant odour should, on any account, be suffered to exist, but everything used for the patient's necessities removed as quickly as possible. Such, then, should be the condition of the sick-chamber; and when the room has thus once been properly provided, it depends upon the nurse to keep it so.

Having combined practical nursing with my medical duties, and knowing the importance of that vocation in every walk of life, and under every circumstance of human suffering, and also that a return to health often depends as much on good nursing as on judicious and scientific medical treatment, I have thus practically written ;—and, unless the physician has a perfect knowledge of this branch of his art, he cannot properly instruct others. I have not felt myself here called upon to expose all, that nurses, in the usual acceptation of the term, too commonly are ; for I know the whole tribe too well,—but have rather confined myself to what I consider *good* nursing and *good* nurses should be.

To the latter, therefore, as well as to the physician, I tender this parting advice. Be observant of trifles, as well as more important matters ; for these latter will command attention, while the former are the small clouds which fly across the horizon of disease, often unheeded,—but which, like their prototypes in certain latitudes, herald the storm. Think nothing too trifling or unimportant. Watch the effects of remedies;—for, where they have to be changed quickly from one to another of an opposite character,—as, for instance, in the highest state of congestive or acid action bordering on inflammation or fever—how important is it to avoid delay? So, again, in the susceptibility of the system to the changes of the atmosphere, as night comes on, or day succeeds to night,—the quietness of the patient during the former, and his restlessness in the latter;—or the sudden perspiration exhibiting some reaction after a dry and parched state of the skin;—the placid slumber or the muttering troubled sleep;—the quiet, tranquil state even in its absence, or frequent turns and uneasy tossings of half-conscious rest;—these, and many other changes, form the thousand little fleecy clouds that pass over the sick-man's couch, and are all worthy of observation. Consider what Art is doing! Is it contributing to disease; or is it assisting Nature? How serious are the questions! Do we, or do we not medicate too much? I believe we do! A habit of close observation, therefore, as a nurse, must not be lightly thought of; and I have reason to fear, that this important study is neglected and thought derogatory to the special character of the medical profession, who may think they should be *only* doctors, while it befits them and their high calling to be nurses as well. Should any such consider that they are descending from their higher sphere by becoming so,—be assured that they are quite mistaken. He that is no nurse cannot see where the failure of his treatment lies, as it may often do so through the nursing, and not as a consequence of his prescriptions; while he who combines the two missions knows, at a glance, where his art is of paramount importance, and where it is only a secondary feature in the scene before him. How much is reputation involved in this? I can only add, that whether the wise physician comes to administer to the necessities of the soul or of the body, he should always be observant and kind, never forgetting the example and precept of St. Paul,—to be, in either case, "gentle among you, even as a NURSE."

# CHAPTER XXII.

## WARMING AND VENTILATION.

Warming and ventilation distinct things—Various modes of warming—Principle exhibited in animal life—Close dwellings of the poor—Natural and artificial ventilation distinguished—Radiation and attraction—The supply of oxygen to be copious and regular—Constitution of atmospheric air and properties of its gases—Air may be heated, and yet retain all its purity—Proper ventilation defined—Warming and ventilation viewed in connexion—Hot-air pipes dangerous—Steam and hot-water-pipes: their objections—Warming by radiation from stoves equally objectionable, and why—Burnt air, how caused—Modes of ventilation: by gratings in the floor: by valves near the tops of rooms, communicating with the chimney—Laws of the admixture of gases—Ventilation of sewers and drains—Effects of poisonous gases from sewers on the health of occupants of houses—Infiltration of gases from sewers—Ventilation of mines, — ships, — churches, — manufactories — Conditions of a proper system of ventilation stated—Atkinson's ventilating stove, and its advantages—General results.

ARTIFICIAL warming and ventilation are two distinct operations; and as such they must be treated. The WARMING of a building, whether in whole or part, may be accomplished in four different ways. In the *first* place, it may be done simply by means of open grates, of which there are many varieties,—such as register and non-register stoves; mere skillets or bars let into brickwork; or, as of old, by fires of wood or coal kindled on the hearth; in all which cases, the atmosphere of the apartment is warmed by direct contact with heat. *Secondly*, it may be effected by means of flues or pipes conveying hot air, water, or steam, or by closed stoves of different kinds, as are seen in halls, churches, shops, and rooms; in all of which the process of warming is accomplished by the radiation of heat from hot surfaces. *Thirdly*, warming may be produced by the means used for lighting buildings and private rooms, by the combustion of gas, oil from lamps, wicks of candles, or such like—the gases so engendered evolving heat. *Fourthly*, warmth may be derived by natural means, as through the decomposition of natural elements—such as air eliminated in low-roofed glass-houses from the heating of mould mixed with manure and kept moist, while the doors are closed, so that the constant absorption of light, and the radiation of heat from the humus or soil, produce the alternate elimination of carbon and absorption of oxygen of the plants, and thereby cause a certain warmth of temperature well suited for the rapidly developing vegetation, but yet to the last degree injurious for purposes of breathing. The cucumber-frame exhibits this principle compactly and simply; and it is shown still more elegantly by the growth of ferns and other plants in hermetically sealed glass-cases or frames—an importation from the horticulture of the ingenious and eccentric Chinese.

This principle is exhibited also in animal life, by the huddling together of flocks or kine for mutual warmth. It is painfully seen, too, in the dwellings of the poor and abject of the human species, where herds of people of both sexes and all ages crowd indiscriminately into wretchedly small and close apartments, forming a melancholy episode to the suffering, disease, and crime of a redundant population. The lowest of this class, reduced by the hardest of human miseries, and steeped to the dregs in indigence and penury, pollute themselves and the very air they breathe, in order to get that warmth which would appear to be denied them by the purifying influence of fire. Thus, amidst their own excrementitious gases, they receive a glow of warmth which at every moment poisons their blood; and by the very filthiness of their exudations breeds alike the most loathsome vermin and distempers. For hours, then, in their dark, dismal wretchedness and squalor, amidst their own humid steams, they catch a feverish and diseased repose; and when the first dawn of day alights on these scenes, the poor wretches steal away from their reeking dens and seek the outward atmosphere. Let any stranger, however, enter these apartments from the pure air, and poison, potent as the leprous distilment that killed the sleeping Dane, will infect him almost as quickly with its baneful influence; nay, let him but meet one of these creatures, thus saturated in reeking infectious matter, and the morning breeze blow this living vapour over him as he passes, it will infect him like the freshly inserted poison from a reptile. Such noisome beings, therefore, should be trapped as we would a sewer, and their dens proscribed.

Nevertheless, dwellings and people such as these not only exist, but are allowed just outside the palace and the lordly mansion. Most criminal and weak, then, must that Legislature be, which refuses to stretch forth its powers to help these self-immolating wretches, and save the innocent neighbours or passers-by from such a moving mass of malaria—such a living, walking pestilence. If obscene books—the morbid malaria to the mind—be now trapped by Act of Parliament, why not extend the same process to the care of the body, which has quite as much, nay, even more, need of such legislative protection? Such, then, are the means used by animals in their instinct, and, as we have seen, by man also in his more degraded state, for procuring warmth.

The four means just described for artificially or naturally heating or retaining heat in any given place, are simply for *warming* such places; and as such they must be alone considered. VENTILATION, on the other hand, is the regulation of all natural or artificial warmth, so as to answer all the requirements of health and other purposes. Thus, in the cucumber-frame or the green-house a certain purity of air must be preserved; else animal and insect life of the most minute form and destructive quality will be produced, as well as disease in plants, precisely as it is engendered in the human dens above described. In all other kinds of ventilation, care must be taken that burnt air, impure emanations, and noxious gases from whatever sources, should be carried off or neutralised. Such, then, are the two distinctive actions of warming and ventilation.

Natural and artificial ventilation, again, are wholly different—in short, two very distinct actions. The first of these may be considered as perfect, the latter as only imperfect; the one acting in obedience to all the natural laws for the diffusion and correction of gaseous elements, while the other only attempts to do so, yet often acting in defiance of those laws; and lastly, the one is perfectly simple and thoroughly effective, the other complex, confused, and ineffective. The best way, then, to succeed in obtaining a good artificial system of ventilation is to study the natural one, and strive as far as possible to imitate it. Thus, there can be no doubt, that attraction and gravitation form the basis of this philosophy,—while radiation and evaporation, from whatever sources, are the opposing powers; these two actions together producing, as a matter of course, an union of elements in given *media* or spaces, as distinct as the two actions previously named, and giving rise to a third and most important law—namely, that of *the horizontal currents of these elements.* All, even the minutest space unoccupied by solid substance or fluid matter, even to the most boundless expanse, must be fully charged with air, which will permeate all solids and fluids; so that nowhere does any vacuum exist. The laws of the diffusion and admixture of all gases in the atmosphere complete all these natural and beautiful phenomena.

In order to illustrate this artificially, we will place a dozen people in a room with a fire — presuming that it is properly warmed and ventilated. The fire diffuses a heat through the elements of the atmosphere—here is *radiation;* the oxygen of the air causes combustion of the fuel burnt—here is *attraction.* The people in the room absorb oxygen from the air for combustion in their lungs, and give out carbon—thus again exhibiting the same actions. Their bodies at the same time oppose the atmospheric pressure by radiation and evaporation; and as they move about or talk, or when the door is opened, these actions tend to disturb the currents of the air, and are herein assisted by those which are heated and expanded by the fire, or other currents going to the fire to assist combustion—called the *draught.* If the door has been shut for some time, and the occupants of the room get too warm, it is owing to the fact that they have given out excess of carbon from their own bodies, and that the oxygen in the room has become insufficient for their use. If they open the door, a fresh supply comes in, and the ventilation of the noxious gas takes place; the result being, that the atmosphere in the apartment is gradually purified. This is what has to be attained in all warming and ventilation.

In many instances, however, it may be noticed, that the windows have a steam upon them; which is owing to the external air being colder than that in the room, and so condensing it in the form of dampness. This may be seen on the walls as well, if they be painted or the paper be varnished,—which prevents absorption. Varnished pictures will thus become dull; and if excess of carbon be in the room, the fire or candles, the lamps or gas-burners, will be dull also. How necessary is it, therefore, that there should be good ventilation! One great fact, moreover, has always to be borne in mind—that, whatever be the size of the apartment, it can only contain a certain quantity of air for natural purposes,—a fact which is due to its elasticity, and the diffusibility and admixture of its elements. Air, indeed, may be fixed and pressed into chambers, and made obedient to our uses; but I am now only speaking of its perfect freedom and natural condition to support life.

The natural atmosphere that we breathe is an ambient body, which science has proved to be of a given uniform consistency. The cause and law of its healthy condition seems not unlike that which regulates health, namely—if I may use the term—a predominance of acid gases. Its uniform properties consist of about four-fifths nitrogen and one-fifth oxygen, with traces of carbon and other elements in every thousandth part. Now, as oxygen is the prime element for the support of life, both in plants and animals, their consumption of it must be very great; and hence it must be constantly renewed and produced from given sources. Plants and vegetables, therefore, are found to yield more oxygen than they consume; and these are the sources of the fresh supply. As nitrogen is likewise a great supporter of organic life,—so organic life, as well as all organic matter in a state of decomposition, yields to the atmosphere this—its greatest constituent. Thus, the atmosphere is, so to speak, an organic body, governed by its own laws of health, upon similar principles to those that govern plants or animals—namely, by the predominance of a nitrogenised element.

These laws, however, are not all we have to consider, when we wish them to bear on proper warming and ventilation of buildings or rooms by artificial means. We must pay attention, also, to the direction and application of them in proper diffusible currents; and it has occurred to me, that if the atmosphere could be made as palpable to sight as to our other senses, we should at once observe the principle and directions assumed by its currents in apartments. As regards the open air, we may always infer, that the laws of gravitation and attraction have greater power there than those of radiation and evaporation.

In the experiments I tried, in conjunction with others, by means of an apparatus purposely made to this end, I found that on all occasions the proper currents were in regular horizontal lines. This was beautifully exhibited by simply warming the atmospheric air, as it passed through an apparatus constructed for the purpose. Its character was not in the least altered; and we found that the air thus warmed could be breathed as comfortably on its exit therefrom at 120° of temperature as at 60°,—thus showing that it contained no carbon, or other impurities. It was then copiously charged with moisture, by means of a jet of steam, and the whole column of air fell in as regular and correct lines from the ceiling inch by inch down the room, and throughout its whole extent from wall to wall, as if measured with a carpenter's rule,—thus forming an undulating wave.

Proper ventilation consists, then, in the purification of any and every element contained in the atmosphere,—whether arising from the natural atmosphere itself, or generated in the apartment. For instance,—the atmosphere of a room may be made impure by the number of persons it may contain, impregnating it with their own exhalations and the carbonic acid gas from their lungs,—or, secondly, from warm air artificially made and forced into it through pipes, or the radiation from pipes. It is the province of ventilation to reduce all these, as far as possible, to the natural standard of the atmosphere.

When this has been done, it does not signify, whether such air is at 60° or 120° of temperature, as I have already proved.

We shall next consider warming and ventilation of the air in connexion with each other. The most unsafe and most dangerous modes of warming buildings are by hot-air tubes, or by hot-air passing through brick flues or pipes; because these always carry carbon in excess. The danger lies in the all but impossibility of regulating this gas so confined; for the flues, and more especially the pipes, become hot enough to ignite wood, or any combustible substance. This has been a fruitful source of destruction to both public buildings and mansions;—and it was the cause of destruction to the old Houses of Parliament. Besides the carbon contained in these conductors, the atmosphere immediately in contact with them becomes burnt, producing a suffocating sensation when breathed too closely, and only partially loses this—when mixed with the purer and more natural atmosphere. Warming by pipes carrying hot water, or steam, is not so subject to this objection;—but still the air is burnt by coming into contact with them, and contains in consequence more carbon than it ought to have, though the oxygen of the air is warmed. Therefore, any ventilation, however good, can only partially regulate or remedy this evil.

Again, both these processes are incapable of being brought under proper control; for any cold currents of air passing above the warmer, and overcoming them by their greater density, will keep them undistributed; but even, if the warm air becomes diffused throughout the whole mass, this is rendered drier than it ought to be for natural purposes;—and this is a fault, which the best means of ventilation, under such circumstances, can never overcome or correct.

Any contrivance for warming a room with air heated by passing over red-hot metal, or the radiated heat from iron stoves, may be called a damp air,—not because it is filled with humidity or vapour, but because it has the property of deadening fire or extinguishing flame. The same objection may be offered to the warming of halls, rooms, shops, &c., by large enclosed stoves;—because the air coming into contact with their radiating surfaces also becomes burnt; in addition to which, there is a sulphurous smell and general admixture in the air of the building of a pungent gas,—the carburetted hydrogen,—both of which gases are particularly noticed on ascending the stairs, or approaching the ceilings for any purpose.

Again, if air be made hot by passing over what are called *red-hot cockles*, or any similar contrivances for heating it, then carried into purifying chambers, and by the assistance of fans, worked by steam, and driven along tubes or pipes into any apartment, the air thus generated is still impure;—besides which, it becomes more or less *strangled.* It is impossible to press more air into an apartment, than it can contain naturally for the useful and natural purposes of respiration. In this simultaneous process of warming and ventilating, too, many of the characteristics of the atmosphere are lost, while the combination of their elements takes place as best it can. There can be no uniformity of either force, pressure, heat, or volume. There can be no even currents, for these are constantly disturbed; nor can there be any true purity,—for whatever care may be used, the air so forced into any building must pass through chambers, tubes, pipes, or other passages, which, be their dimensions what they may, cannot always be pure, even though made of glass; for certain impurities will always be found in them. Should these currents, as frequently happens, be made to pass under a floor in their passage upwards, particles of dust or insidious débris are disturbed and carried along with them. Independently of this, too, the warm air thus carried into the apartment has just the same effect as that arising from the burnt air that proceeds from the lungs of a number of people in a hall or room, as may be seen from the steam upon the windows.

There are two very important points, however, to be considered, besides the breathing of these impurities;—and the FIRST of these is the natural disturbance of the currents of the air. This cannot be better illustrated than by taking, as an example, the currents of air forced through apertures in the floor. Instead of the uniformity of the horizontal currents being preserved as much as possible, the tendency is upwards—thus interfering with the laws of acoustics. The voice, then, instead of passing through horizontal waves, follows those upward currents, and becomes lost.

The principles of light, heat, and sound, in their passages through the air, have a great analogy. Parts of all are transmitted, and parts absorbed. What happens in the natural atmosphere must also obtain in the artificial one; and therefore, while ventilation is used simply as a purifying agent to all artificially heated atmospheres, the laws of the currents of the air are the chief points that demand attention.

SECONDLY.—If hot and cold air be forced in at the floor of a room through gratings, all the natural laws of the atmosphere are outraged; for if the air of the apartment is warm, and is thus cooled by a current of cold air, this admixture of air of two distinct densities causes the greatest irregularity in their currents. The carbon from the lungs of the occupants of such rooms is carried perforce upwards, together with the gaseous elements of the perspiration and exhalations from their bodies; and by the law in obedience to which the gases unite—some being heavier, some lighter, than the atmosphere—the power of the currents thus formed may attract to it the heavier, as well as the light; but still they are sure to descend again, simply by their own gravity.

In a room thus treated, containing several hundred persons, it may well be imagined how much carbon from their own lungs and bodies must be continually descending for them to breathe again. However pure, therefore, the hot or cold air may be, which is thus forced into the apartment, nothing can prevent the whole mass from being impregnated with deleterious gases. Another objection is, that any one standing on these apertures or gratings is subjected—first to the current of hot, and next that of cold air,—a process that cannot but be injurious, and predispose him, more or less, according to his state and habit of body, to disease in some form or other,—whether rheumatism, or affections of the stomach, lungs, or brain.

Independently of this, all the laws of atmospheric currents are interfered with, and there are no purely horizontal ones at all. In such a condition of circumstances, supposing the individual to be speaking or singing,—his voice is carried upwards; and even if he have clear lungs and a good voice, he is rendered indistinct,—sometimes even inaudible. When such is the case, the listeners should be up at the ceiling, not on the floor; whereas, on the other hand, if the proper horizontal currents were attended to, the voice would pass through them from one end of the room to the other,—and this, too, without half the exertion demanded of the singer or speaker, when the currents are flying upwards.

To illustrate this principle of ascending currents, I shall mention a rather new process, very commonly adopted for ventilating rooms, — consisting of a valve inserted into the chimney-breast, just under the cornice of living-rooms. Now, this may answer in winter, though not in summer;—or, rather, it only answers when there is a fire in the grate,—and for this reason, that there is a good draught kept up in the chimney. Should gas be burnt in the apartment and the valve left open, the upper part of the room will be well ventilated, because all impure air rushes through this valve—as through a vacuum—carrying with it certain portions of dust from the apartment,—a fact plainly shown by the black, dusty edges of this valve, through which the air makes its exit. The principle, then, is good; because the impure air is drawn by means of a vacuum out of the room;—and yet it has this drawback, that it carries with it as well much of the pure warm air of the room. The result is, that there is no uniformity of temperature throughout; for the air about the floor is kept cold, and there is a difference of many degrees between the heat of the air on the floor and that at the ceiling. This, however, is better than breathing burnt air from the gas-lights, if they are used, or the carbon generated from the people in the room.

In summer, on the other hand, when there is no fire in the grate,—if the valve be left open, there is not sufficient draught up the chimney to carry the air in the room above the point of insertion of the valve; the consequence of which is, that the air from the chimney is blown into the room, filling it with blacks and carbonaceous matter, as the warm air is not sufficiently powerful to resist it. This I have seen in large work-rooms used by milliners, whose light fabrics run the risk of being spoiled, unless this valve is kept rigidly closed. Thus, then, we see, that in winter the warm air and carburetted hydrogen are drawn away at the expense of cold feet and legs,—and that during summer it cannot be used at all, except at the expense of breathing impure air. This can, at best, only be called a very partial benefit by ventilation.

All gases have their peculiar laws of simple admixture. Some are heavier, some lighter than the atmosphere;—so that any of them which are of a noxious description are simply neutralised. Thus the atmosphere, from its natural disposition always to assume a given standard, is one great medium for purification; and water, for the same reason, is another. The proof is, that a small amount of either water or atmospheric air will neutralise a large amount of poisonous gas. Water acts best on some of these occasions, the atmosphere in others—the atmosphere, in particular, exhibiting its disinfecting power best,—sometimes when it is very dry, at others when it is very moist;—while, on the other hand, too moist an atmosphere, loaded with impurities, will carry poisonous elements very rapidly, and with most baneful results, into the system, while too dry an atmosphere will irritate and disease the air-tubes of the lungs.

One law, however, must always be borne in mind, namely, that neither air nor water can neutralise noxious gases beyond what is called *saturation;* for any gas entering them beyond this limit is as completely unaffected, as if no such media had been traversed at all. This principle should never be forgotten in the management of sewers; and I cannot but fear, that some fatal errors may creep into the great metropolitan sewerage arrangements,—particularly at the parts just above the anastomoses or unions of the arterial drains. My reason is,—that, whatever amount of water may be in the sewer, should saturation take place, the noxious gases still constantly generated will fly to the highest levels, and where the greatest safety was supposed to exist, there the deadliest agency will be exerted. It is hence more difficult to drain or sewer a house on a hill than one on a moderate gradient or fall.

The greatest security from all chance of super-saturation is, when there is not too great a fall in the drains or sewers. A dry drain is always a foul one, and generates more noxious gases than one which always contains a certain amount of water; for it is neither more nor less than a foul gas-retort. The flushing of a drain after a storm of rain, or from laying on a superabundance of water, will purify it; but still it is preferable that some of this latter water should remain, than that the drain should be entirely empty. Should any portion of a drain or cesspool be connected with, or form part of, the walls of any room or house in any way, pernicious gases will infiltrate. All the trapping in the world will not prevent this; for the very contact opposes every art used to effect this purpose. I have spoken elsewhere of this very fact with relation to the natural sink or drain of the body—the large intestines:—and, where these are kept empty, gases and flatulence—by whichever name we call them—are largely generated, to the great inconvenience—often danger of the patient through being poisoned thereby. It is just the same with a sewer.

From the above remarks it may be inferred, that, according to the character of the noxious gases to be removed, we should be guided in the processes of ventilation and disinfection. The lighter and more ambient they are, the greater is their power of evil, because they permeate everything and infuse themselves everywhere;—whereas, on the other hand, the heavier they are, the more they remain fixed. Ill-ventilated sewers, decomposed vegetable and animal matter, or undecomposed mineral matter, with moisture, generate many forms of deadly gases. Ventilation must, therefore, counteract these,—must be very extensive, as well as efficient in its action. It cannot be confined to the simple act of making a room or house habitable,—which you may be doing for ever, and still never arrive at purity; for instance, if there should be a percolation of gases, from unascertained causes, through the foundations,—or, as I have known it to be the case, from the rain-water pipes or gutters on the roofs of houses being carried into a sewer. The effect of this has been, that after the rain has been conducted from the roofs down these pipes, the gases of the sewer, or probably a cesspool or two, have been disturbed and disengaged, causing the former to ascend the now empty pipe;—and should the atmosphere be at all dense, they will find their way into all the upper rooms of the house—the very worst places they could invade,—for here are the sleeping-apartments. No one imagines, when he enters these at night and perceives a closeness or peculiar smell, the source whence it arises. The door and windows are of course shut for the night; the smell wears off, as the inmates get accustomed to it; and so these apartments, which are occupied by the children and servants of a household, (for the adult members of the family usually sleep in the middle rooms,) become a reservoir of mephitic and poisonous gases; and hence is it that fevers take their source. No other part of the house is thus affected; and it seems in vain to search for its cause; for persons usually hunt about the ground-floors in search of causes for these close and offensive smells. When such pipes terminate a few inches from a trapped drain, the first rain-water cleans them;—but when they are inserted into the drain, or into pipes that run into cesspools, they become retorts themselves,—in other words, the best possible conductors for all the pernicious compounds of hydrogen gas.

Wherever there is proximity of any free gases, they will be diffused through each other, and nothing can prevent this; for no trapping or stopping in the world can hinder their union, as one will act as a positive vacuum for the other. They will most readily permeate both water and solid substances; for hydrogen is itself so subtle, that neither cement, nor plastered walls and ceilings, nor bricks and mortar, throw any impediments in its way. Thus all emanations from drains, sewers, or cesspools are not only intolerable nuisances, but most dangerous to health; and, unless all actual contact be removed, no artificial or mechanical ventilation can ever remedy them.

All gases having any admixture of hydrogen may be called, *par excellence*, the fever-gases, and will travel against the currents of a monsoon or a tornado as well and as readily as with them, —thus showing that currents of air or wind, however rapid, are not necessarily ventilating or purifying, if they contain any poisonous gases, inasmuch as the latter mix with and permeate them as readily, as if they were passing into a vacuum. All these pernicious gases, too, are so light that they enter the atmosphere, ascending through it with the greatest rapidity. Thus the higher parts of a town offer no protection from malaria; for its lower parts may actually generate it, and yet be free from fevers or their results,—while the higher districts have them in all their full force and destructive influence. Balloons are carried into the air by these gases, and the useful element of flame that we burn is supplied better when the pipes conveying it ascend; while, on the other hand, dead levels and declivities are unfavourable to its action. London has ever been considered as healthy a place of residence as any in the world; but I may here observe, that the ground is never disturbed for repairing the gas-pipes, without our also seeing that the whole mass of earth dug out is black, and smells most offensively, from the thorough impregnation of the soil with carburetted hydrogen gas. What may one day be the result, it is impossible to say.

So much for the lighter gases in sewers, &c. The heavier ones, such as the carbonic acid gases, will remain fixed in them; and there is no danger, unless persons go direct into them. Now, this should never be done without great caution; and whoever be employed for this purpose, should make up his mind and be prepared for a gentle shower-bath. Thus, as he descends the sewer, another person should be at hand with a large watering-pot furnished with a proper rose, and keep pouring water down in small divided streams; the object of which is to carry down oxygen from the air to enable him to breathe, which he cannot do in carbonic-acid gas. This is a very simple and efficacious plan, though very generally forgotten; and owing to this neglect, one person will follow another for the charitable purpose of rescue, and all meet an untimely end.* The commonest bricklayers and nightmen

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* Soon after writing the above, I saw in the *Times* of August 29 (1857) the Report of a coroner's inquest held on three poor men who died from being asphyxiated (Aug. 25) in a sewer at Whitechapel. Five were attacked, and only two survived the choking influence of the gas.

Treasury three-halfpence in every shilling, or twelve per cent., for the license! The entire proceeds of this diabolical compact amount on an average of years to 329,400*l.* per annum,—that being the price which the pill-devouring public pay for quack poisons; and out of this the Chancellor of the Exchequer gets 36,600*l.* a year to swell his annual budget. This is the reason, why the Legislature is deaf to all appeals for a reform of the abuse!

Where, then, (the reader may ask,) is the remedy? I reply, that the remedy must spring from the people themselves, from whose senseless gullibility the quack derives his harvest. The spread of a little sound knowledge among the general public on the subject of health and disease, and a little wholesome distrust of their ability successfully to physic themselves, will do more to dethrone the quack than even the interference of the Government,—could it be obtained. I am bound to add, likewise, that a reform should also be inaugurated in a quarter whence there is good reason to believe that all such quackeries originated,—I mean, among the educated members of the faculty. Let them but bestow a little exertion in rooting out empiricism from the profession; and they will do something in loosening its hold on the people.

The great and only true remedy against quackery is, after all, the removal of everything like mystery, and concealment, and conjuration, from the practice of the healing art. There can be no reason, beyond a liking for trumpery and barbarous pedantry, that keeps up the practice of writing in an unintelligible jargon the denominations of the medicines to be used, and the mode of their application in cases of disease. There is no reason on earth, why the nomenclature of medical appliances should not be as plain, simple, and easily comprehensible as that of the food we eat, or the dress we wear. True,—a recurrence to plain English would, in a round number of instances, put an end to extortionate charges for simple substances that cost next to nothing; and this is a consummation to which, it may fairly be supposed, no honest professor of the healing art would object. If such a system should operate in preventing a rogue from realising a dishonest profit, where is the harm?

The probability is, that it would sometimes save him from poisoning a patient through his anxiety to receive the price of a prescription which the latter is unable to decipher—a case of too frequent occurrence on the present plan. Let every drug, then, bear its plain English name; and let every prescription be written in plain English words, at full length, without crabbed hieroglyphics or figures. In short, let the whole faculty, to a man, eschew the pitiful, pedantic practice of confounding the wits of their patients with hard words and scientific terminologies. Let them tell the suffering party plainly and honestly what is the matter with him, if they know, —and, if they do not, candidly confess as much. In a word, *let the medical profession un-quack itself;*—and—my life on it—they will do more to abolish the dominion of advertising empirics than the most vigorous legislation could accomplish.

One word now to the pill-swallowing public. You may indeed congratulate yourselves, my deluded friends, that you are *cheated* to a far greater extent than you are poisoned; I give you joy at being so egregiously deceived, as respects the boluses you so piously swallow; and I cannot but express my delight, that the machine-made nostrums, for which you open so eagerly your unsophisticated throats, are not precisely, or to the full extent, so effective as you believed them to be. Had these manufactures, indeed, possessed one tithe of the vigour which their compounders boast for them, I am persuaded that a very large proportion of you would have been dead long ago.

Whether the quacks of the present day have retained some small remnant of conscience that induces them to be content with the plunder and forego the slaughter, or whether, as is more likely, (for conscience is an article in which they have few dealings,) they sagaciously calculate that poisoning their customers is not the best way of promoting business, I shall not pause to inquire:—but the fact is certain, that a good proportion of them, having no fancy to run the chances of a damnatory verdict from a coroner's jury, have long ceased trafficking in the powerful agents, with which it was once the custom to prostrate a man on a sick-bed for the trifling price of thirteenpence-halfpenny. In short, the drastic drug and the fiery stimulant have, in numerous instances, (though the so-called remedies still retain their original names,) given place to inert and harmless substances—substances calculated *non alvum, sed crumenam solvere*, to relieve the pocket, and not the intestines, from the *irritamenta malorum.*

Thus you see, if any of you think of picking up a good rumbling cholic at the price of a few halfpence, you may find yourselves deceived. Two things, however, you do:—you exercise your patriotism in contributing to the revenue by the consumption of nostrums, which it is barely possible do you any vital injury; and you exercise your charity and philanthropy in contributing by the same process to maintain in a state of wealth and luxury a large class of thick-skulled, hungry individuals, who, possessing neither brains nor honesty, would infallibly go to the dogs but for your good-natured patronage. Thus much, then, for the quackery of the unlearned.

I shall next turn to the quackery of the profession itself, those who have been specially educated for the healing art. If we were carefully to retrace the history of the medical profession, we should find that almost every known curative agent, whether coming under the denomination of outward applications, inward remedies, or system of regimen, diet, and exercise, has in its turn been quacked, and that too *ad nauseam*, by the medical faculty themselves. Such a retrospective review reveals the humiliating fact, that for ages the votaries of medical science have been as much the slaves of the whims and fashions of the hour as the veriest fops that ever sported a bag-wig at Ranelagh, or attitudinised in stays "at the bath." In fact, the Galens of a century back were frantic for spas, mineral springs, and chalybeate waters,—drenching and parboiling their patients by day, preparatory to a sweat under the master of the ceremonies at night. Well,—that fashion died out; but it was scarcely gone, when the mercurial era set in; and the rage spread far and wide for *calomel and blue-pill*,—a fashion which reached its climax some twenty years ago, and after destroying more lives, ruining more constitutions, and inflicting more misery on the

English people than any other medical mania that could be mentioned, is, at last, in our own day, I hope, sinking under merited obloquy and disapproval.

Among the quackeries most in vogue among the profession at present are *Homœopathy*, *Hydropathy*, and *Mesmerism*,—on each of which I shall make a very few brief remarks. The principle of the Homœopathist is based on the old maxim—"*similia similibus curantur*," "like cures like"—a maxim which is true only to a certain extent, and which, as far as it is true, was very popularly known and acted upon, before Hahnemann made it the basis of his system. The homœopathist pretends, that any drug, the reception of which in the system would produce any particular disease, is, when properly administered, the cure for that disease;—so that a certain train of causes in the system, which by gradation of disease, produces a paralysis or an apoplexy, will be cured by the drugs (in the absence of all those naturally accumulated causes) that would produce them. His notion, in short, was, that the depressed action of the nervous system by gradation and the loss of the natural electro-vital properties of matter are to be cured and restored by that which would—if given in health and lusty manhood, in the highest condition of the nervous system—produce that depressed action, and so bring on disease.

It is plain that, were such a principle carried into practice according to the ordinary rules of administering medicines, no end of murders would ensue; because the ordinary doses—even the smallest which experience has shown to be effective—would in such cases act only as fuel to fire, increasing the disease. Out of this has arisen that peculiar mystery of the homœopathic system, which has such charms for the lovers of the marvellous and the haters of "nasty physic,"—namely, *the infinitesimal dose*, which is the grand bulwark of homœopathy. Now, to give it a philosophical aspect, the homœopathic practitioner alleges that it is unscientific to consider quantity an element in curative agents,—all that is wanted being what they term "the acting base," to set up the restorative process, which once set up, needs only a fillip now and then, by the re-iteration of the dose, to complete the cure.

The homœopathist, moreover, is often heard to allege, that *the power of doses is inversely as their quantity*, that the more minute and infinitesimal the amount of the dose, the more rapid and efficient is its action, and one of his chief boasts, on which he will discourse magniloquently, if you choose to listen to him, is the wonderful power of dilution of which his medicines are susceptible. He discovers, forsooth, a prodigious increase of energy derived from trituration;—he can impregnate, for instance, a ton's weight of sugar with a single grain of magnesia; he can split an ounce of the impregnated mass into a million of globules; he can dissolve one of these globules in a gallon of water, or, if he is meditating a desperate case, in a hogshead, and can cure you with a spoonful of the dilution, taken at regular intervals, of any disorder which a diet of magnesia would produce. This is the rationale of the system divested of the scientific *chevaux-de-frise* with which, for his own especial purpose, he has thought fit to surround it.

Faith must necessarily be a great element of belief here. To imagine that the laws of matter can be so outraged and set at nought by people in an age of intelligence like the present, is an enigma which I confess myself wholly unable to solve;—yet this species of charlatanism has gained great ground. Nevertheless, if homœopathists are honest, then good-by to reason. If they set up infinitesimality as their creed, and give, as I have heard they do, acting doses of the alkaloids,—now mind this—of belladonna, nux-vomica, or strychnine, or any other of these vegetable or acting bases, so as to have an effect on the laws of matter, and pretty much in the proportion that they are used by regular medical practitioners,—they give the lie to their principles, and actually do what they profess to repudiate. This, in short, is not infinitesimality at all. It is quite clear to me that an unlimitedly attenuated medicine, of whatever kind, can have no appreciable influence on the laws and properties of matter; and therefore, if homœopathic patients are cured, or supposed to be cured, by them,—they never could be more than homœopathically diseased, and in this state could have no more the matter with them than what a simple attention to diet, or some fresh amusement for the mind, might have equally well relieved. If, however, the followers of these charlatan-practitioners believe themselves to have been cured by globules and infinitesimal divisions of a drop of tincture, and have been "credulous in this mad thought," they have only paid their money for that which a little more sense would have told them they could have been as easily cured without. In short, I would ask my readers to look at such a theory dispassionately, and, leaving their dislike of nauseous medicines out of the question, to consider if it be worth their credence and confidence. An infinitesimal dose—the millionth part of a grain, or less—is, these quacks affirm, a cure for a disease that attacks the very source of life!

The reader, however, may rejoin:—"The homœopathic practitioners do succeed in making cures,—that you cannot deny; for many of these cases have come within my own knowledge, and I am bound, therefore, to believe in the reasonableness of their system." Let me be allowed, however, a word in reply. I am not going to deny that the homœopathist makes numerous cures; but what I unhesitatingly assert is, that *the immense majority of the cures he makes are of disorders which would cure themselves, if he were to let them alone,* and do, in truth, cure themselves in spite of his interference; and I also assert, with regard to the more serious cases, that, when he does cure them by medicine, it is not by homœopathic doses. In his warfare against disease he is furnished with ball, as well as blank cartridges; for the most powerful agents may be administered in globules as well as those which are the most innocuous and inert. What he mainly relies on is the *vis medicatrix Naturæ,* which the plan of diet and regimen that he invariably enforces leaves at full liberty to operate for the patient's benefit, and through which, in unimportant cases, a cure is brought about; though, when these means prove inefficient, he will not scruple to recognise the element of quantity, because he cannot, dares not, trust to his globules and dilutions.

HYDROPATHY, or the Cold-water Cure, as all the world knows, was the invention of the German Preissnitz, and was first practised at Gräfenberg. On what principle he based his system (if, indeed, he had any at all) it is difficult to say. In practice, he subjected the human frame to the action of cold baths devised in a variety of whimsical ways;—such as, *futzes* for the feet, *sitzes* for the loins and abdomen, *douches* for the head and back, *wet sheets* for the whole body,—and he tumbled his patients out of their warm beds into cold tanks, made them rub themselves dry, and then sent them scampering over the hills at the rate of ten, twenty, or even thirty miles a day in search of appetites. With all this, he banished wines, spirits, pastry, and all indigestible viands, and established a rigorous system of diet, with plenty of wholesome, generous food, cheerful amusements, and constant exercise. As a natural consequence, he made many cures; and what wonder? All those diseases which, in their first or second stage, arose from self-indulgence and neglect of the commonest dictates of Nature and common sense, yielded, as a matter of course, to a treatment which compelled a return to a natural and reasonable mode of life. So far good;—but there the magic of the cold-water cure stops, and always will stop, because it can go no farther. The hydropathist can do no more with cold baths against confirmed disease of any kind than the ordinary practitioner. The latter never scruples to use them, when their use is desirable; and the former, unless he be eaten up by some unhappy leaning towards inordinate water-drinking, is just as cautious in their application as he would be with regard to any other supposed remedy.

To pretend that cold water—apply it as you may—will cure even one-half the diseases for which that remedy is sought, is nothing short of the grossest quackery. The experience of hydropathy in England has driven that fact pretty well home to the consciousness of its professors, who have long since found out its real strength and weakness, and have latterly become far more modest in their claims than they once were. The water-cure establishments in this country have of late years become very different affairs from aught contemplated by the innovating German. So far from being, as in that country, so many hospitals filled with ailing patients condemned to drink gallons of water *per diem*, and covered, like patient Job, "with sore boils from the sole of his foot unto his crown"—they are now places of fashionable resort, where frolic and amusement are the order of the day, with just as much bathing and exercise as will ensure a wholesome appetite for plain food, and plenty of it. Viewed in this light, such institutions are, no doubt, excellent things in themselves; and to any lady or gentleman feeling out of sorts, whose time is no object, or hangs heavily at home, who can well afford the expenditure of some fifty guineas a month for the privilege of being compelled to lead a rational life under professional superintendence, I should say, Go by all means and enjoy yourself in the hydropathist's retreat;—for he will do you good and not harm, by rescuing you, for a time at least, from your own inaction and self-indulgence. Yet, on the other hand, I am bound to say, if you have serious disease to contend with, and think to get it sweated or washed out of you with cold water, you are labouring under a fatal delusion, and may chance to lose more than your time and money by the experiment.

Under all, or most at least, of the quackeries of the medical faculty there lies a germ of truth. The homœopathist is right in his reliance on diet and regimen, and the curative powers of Nature; while the hydropathist is right also in attaching sanitary importance to the virtues of temperance, cleanliness, and cheerfulness combined with regular exercise. The mischief is, that both are fatally wrong in claiming for their systems an amount of efficacy which they do not possess, in surrounding them with the elements of mystery and hocus-pocus, in quacking them, in short, and thus making them the means rather of profit to themselves than of health to the public. Homœopathy, no doubt, will have its day, and in dying out may do something towards modifying the fashion of giving powerful doses, which is even still far too prevalent with the profession; and so in like manner will hydropathy sink after a while to its proper level, and take its place among the recognised curative appliances. In a word, these hobbies will sooner or later over-ride the public toleration, and then, like the system of counter-irritation in the hands of St. John Long, will fall into obloquy and disgrace, though—as in the case of counter-irritation—what is good and useful in all will continue to be available to the scientific practitioner.

Of ELECTRO-MAGNETISM and the various forms of MESMERISM that have lately found their way into medical practice, I can say nothing recommendatory. If, as the magicians who handle them contend, these be remedial agents, they are yet, according to their own showing, applicable only to that comparatively small section of the community, whose faith in them is sufficiently strong to entitle them to the benefits they promise. It is in vain, that the mesmerist paws and grimaces and stares at an infidel subject;—for such a one derives no advantage from the operator. While the mesmeric cure remains in this condition,—while it is applicable only to a patient who happens to be in a concatenation accordingly, and not to sufferers in general,—I feel inclined only to say, respecting such quacks,—"Leave all this class to their own peculiar follies."

CLAIRVOYANCE AND ELECTRO-BIOLOGY, SPIRIT-RAPPING, TABLE-TURNING, are all of them hobbies, well, badly or boldly ridden, or else over-ridden, as the case may be. Respecting the first of these, a modern writer has wittily called it

> the art of seeing through
> Those who're not sharp enough to see through you.

The whole of them, however, seem to have been brought forward, more to amuse the town than for any practical good; and now, having had their little day, they are fast subsiding into a well-merited and anticipated oblivion. The only wonder is, that men of apparent or previous eminence,—quasi-scientific and learned professors of colleges,—have been drawn in to support such special follies. That men like these should thus step from their high positions to play the mountebank, is one of those unaccountable freaks that baffle all philosophy. That there may be something in all these eccentric phases of the human mind, some unexplained phenomena, perhaps the wisest of us may not feel disposed to doubt; but the idea of people being able to read with the backs of their heads as well and clearly as by means of their eyes, to hear with their toes, to smell with their hands, to taste with their knees, or to think with their elbows—to be able in mesmeric trances to become *clairvoyant* prophets and soothsayers, and as such to predict events and point out the present acts and thoughts of distant friends, must strike even the commonest observer as being the mere hallucinations of an overwrought brain.

Being charitably disposed, I for my part incline to the opinion that the mildest course is, to treat these follies as though they had no existence at all. One cannot deal with shadows; and it is but lost labour to attempt to subject them to a candid judgment. It may be asked, indeed, if they do not belong rather to an age long gone-by, when monks and priests held full sway over credulous ignorance, when men believed that painted pictures bled at certain times, where artists had painted the wounds—and that too, often on a daub perpetrated in defiance of both drawing and anatomy. All such hallucinations, however, have their disciples in every age. Many run after them, and soon turn away again; while others find in them a source of amusement. Yet, be that as it may, it is at all events fortunate that there are few, who believe in them eventually.

*Lastly*, there is a class of quacks, who occupy the border-land between the recognised medical practitioner and the pill-driving mountebank. More vile even than these latter, they work on the fears and apprehensions of the thoughtless or the foreboding terrors of the unfortunate. Their number is great also, not only in London, but throughout the country, and they make a grand merit of secresy, professing to cure without betraying the existence of the disease. In practice, however, they rarely cure, while they uniformly plunder the patient, who is generally compelled at last to have recourse to the regular practitioner. Some of them, moreover, professing an extra stock of humanity, pretend to eradicate all nervous and mental diseases, proclaiming that their sole motives for practising at all are considerations of *benevolence*,—and that, being possessed of an infallible remedy, they do not feel justified in withholding it from mankind. Worthies like these receive their patients into their houses, binding them, at the same time, by a solemn promise, not to reveal the grand secret of cure. Now, this grand secret, as I happen to know from the authority of a patient who underwent the process, and in disgust at its failure blabbed it out, is nothing more nor less than *holding the head of the sufferer under the pump from fifteen to twenty times a day for five minutes together*,—this pumping being taken in connexion with a preachment and family prayers, and bed at nine o'clock!!!

Others of this fraternity, again, are AURISTS, who profess to cure deafness in all its stages, but who after all make you hear only that which most concerns themselves—such as the amount of their fees, which increase at every visit, on pretence that each new nostrum is more specific than the last. Others, again, take the eyes, and medicate for the purblind,—or prescribe in various ways for the cure of defective speech;—in a word, if the whole swarm of these quacks be taken together, it will be found that they have mapped out the whole human frame between them, leaving nothing for our diploma'd *medici* to do but look on and see how wonderfully these clever actors perform their several parts.

Absurd as all this is, it is scarcely more so than the practice of medical professors themselves. Wanting reliance on the routine system of treatment, they are seen for ever to be running after some new remedy, which they administer for every disorder that comes under their hands. At one time, creosote is all the rage, and one finds the wards of all the hospitals stinking of tar, like a ship-builder's yard; at another, calomel is all the rage, and, no matter what the disease, it is sure to be found in the prescription. At the present moment, cod-liver oil is the fashionable physic; and this, no doubt, after having furnished its predestined hecatomb of martyrs to fashionable medicine, will in its turn sink into oblivion and make way, as its predecessors have done before them, to some new pet-remedy of the profession,—such as may probably be expected of the glycerine in the present day. In conclusion, I have simply to repeat what I said before:—*The reign of quackery will never be abolished among the people, until the medical profession is no longer open to the charge of quackery among themselves.*

# CHAPTER XXIV.

## THE PHARMACOPŒIA AND ART OF PRESCRIBING.

### Part I.

The symbols, weights, measures, &c., and their abbreviations, used in medicine —The Domestic Medicine-chest and its contents: powders, extracts, tinctures, acids, wines, liniments, ointments, &c., with the proportions required of each—The Drugs, with their doses and effects on the system—Carbonates of soda and magnesia important antacid remedies for congestive disorders—Remarks on opium and its different preparations: laudanum, Dover's-powder, paregoric, &c., with directions for their use in different states—The aperients—Tartarised antimony and its uses, both as a nauseant and emetic—Quinine and cinchona-bark: when useful respectively, and why —Camphor and sweet spirits of nitre—Tincture of digitalis, valuable for lowering the pulse—Calumba and gentian, useful tonic bitters—Remarks on the bitter-barks and their geographical distribution—Complicity of the old prescriptions illustrated—Herb-medicines often effective—Henbane and its uses, as distinguished from opium—Muriate of iron (*steel-wine*), an useful tonic and astringent—Colchicum-wine in gout, rheumatism, &c., with rules for its use in different states of the system—Castor-oil and its uses, internally for colicky pains in the bowels; externally for rheumatic joint-affections—The acids important remedies for inflammatory actions, to supply deficiencies of the gases in the system—Glossological indications for the employment of the acids (and more particularly the sulphuric and nitrous) in typhoid, scarlet fevers, and other inflammatory or alkaline actions—External-remedies: liniments, Goulard's-extract, the ointments, and especially the golden-ointment in scald-head and other skin-eruptions.

In order to understand the directions given in medical prescriptions, it is first necessary to become acquainted with the symbols used in prescribing medicines,—whether in their solid or fluid forms,—as well, also, as their relative or comparative value.

The following, therefore, will prove useful:

NUMBERS.

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|---|---|---|---|---|---|---|---|---|---|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
| I. | II. | III. | IV. | V. | VI. | VII. | VIII. | IX. | X. |
| 20. | 30. | 40. | 50. | 60. | 70. | 80. | 90. | 100. | 1000. |
| XX. | XXX. | XL. | L. | LX. | LXX. | LXXX. | XC. | C. | M. |

Fractional parts of numbers are thus written:

| Thirty-second; | sixteenth; | eighth; | sixth; | quarter; | half; | three-qrs. |
|---|---|---|---|---|---|---|
| $\frac{1}{32}$ | $\frac{1}{16}$ | $\frac{1}{8}$ | $\frac{1}{6}$ | $\frac{1}{4}$ | $\frac{1}{2}$ | $\frac{3}{4}$ |

In prescriptions, however, the half is also expressed by a double s; as ss.

The symbols of weights and measures used in pharmacy are:

| | | | |
|---|---|---|---|
| The grain . . . . | gr. | The pint . . . . | ○ |
| „ scruple . . . | ℈ | „ pound . . . . | lb. |
| „ drachm . . . | ʒ | „ gallon (congius). | cong. |
| „ ounce . . . . | ℥ | | |

When fluid medicines are prescribed, the initials *fl.* are usually prefixed to all quantities, except the grain (gr.) and scruple (℈),—to denote fluid or liquid measures;—as fl. ʒ, fluid drachm,—fl. ℥, fluid ounce,—fl. lb., fluid lb.,—fl. ○, fluid pint, —and so on.

The values of the pharmaceutical measures are as follow:

20 grains, gr. xx=one scruple, ℈i
3 scruples, ℈iii=one drachm, ʒi
8 drachms, ʒviii=one ounce, ℥i
12 ounces, ℥xii=one pound
20 ounces, ℥xx=one pint
8 pints, Oviii=one gallon

In measuring fluids, likewise, drops (*Lat.* guttæ), abbreviated *gæ*, and also measured drops or minims—abreviated ♏, are used.

Thus, sixty minims,—♏lx, are equal to one fluid drachm,—fl. ʒi.

Spoonfuls and wine-glassfuls being frequently used in prescriptions, it is necessary to approximate, as nearly as possible, their contents, which may be fixed as follows:

One teaspoonful=one drachm, ʒi
One dessert-spoonful = two drachms, ʒii
One table-spoonful = four drachms, ʒiv or $\frac{1}{2}$ oz., ℥ss
One wine-glassful=one ounce and a half, ℥iss

The term *Cochleare* (abbreviated *Cochl.*) means a spoonful;—and when the words magnum, medium, or minimum are employed, it means a large, or table-spoonful (*cochl. mag.*),—a dessert-spoonful (*cochl. med.*),—or a tea-spoonful (*cochl. min.*), respectively.

The letter *v* (abbreviated from *vel*, OR,) and the word *ad* (meaning *to*,) are used as follows:—℥i v. ℥ii (one or two ounces),—and gr. x ad xxx (ten to thirty grains).

Glass measures can be purchased, properly graduated, to denote the minim, drachm, ounce,—as well as the tea, dessert, and table-spoon measurements. These I recommend as accompaniments to the following drugs and other requisites for the domestic medicine-chest,—together with proper scales and weights, a pestle and mortar, an ointment or pill-slab of porcelain or glass, spatula, &c. The larger weights are marked by the apothecaries' symbols above described, — the grain-weights by the number of stars or dies stamped on each.

## THE DOMESTIC MEDICINE-CHEST.

The quantities here specified are merely nominal,—introduced simply for the purpose of showing their relative proportions required. The former will best be regulated by persons themselves, according to the number of their families and facilities for obtaining the drugs. Captains of vessels, or families emigrating to the colonies or foreign countries, can supply themselves in similar proportions, regulating the quantities according to their probable requirements.

The following drugs, then, will form a very complete collection for almost all purposes:

### POWDERS.

| | | | | | |
|---|---|---|---|---|---|
| Carbonate of Soda | lb.ii | 2 lbs. | Jalap . . . . | ℥iv | 4 oz. |
| ———— Magnesia . . . . | lb.i | 1 lb. | Nitrate of Potass (Nitre) . . . | ℥vi | 6 „ |
| Compound Tragacanth . . . . | ℥vi | 6 oz. | Opium . . . . | ℥ii | 2 „ |
| Dover's-powder . | ℥ii | 2 „ | Rhubarb . . . | ℥iv | 4 „ |
| Grey-powder . . | ℥ii | 2 „ | Scammony . . . | ℥ii | 2 „ |
| Ipecacuanha . . | ℥iv | 4 „ | Tartarised Antimony . . . . | ℥ii | 2 „ |

To which may be added,—

| | | | | | |
|---|---|---|---|---|---|
| Quinine . . . | ℥i | 1 oz. | Common prepared Chalk . . . | lb.ii | 2 lbs. |
| Camphor . . . | ℥iv | 4 ,, | | | |
| Epsom-salts . . | lb.iv | 4 lbs. | | | |

### EXTRACTS.

| | | | | | |
|---|---|---|---|---|---|
| Compound Colocynth . . . | ℥ii | 2 oz. | Gentian . . . | ℥i | 1 oz. |
| Rhubarb . . . | ℥i | 1 ,, | Henbane, or Hyoscyamus . . . | ℥i | 1 ,, |

### SPIRITS.

| | | | | | |
|---|---|---|---|---|---|
| Sweet Nitre, or Nitric Æther . | ℥viii | 8 oz. | Sal-volatile . . | ℥viii | 8 oz. |
| Sulphuric Æther | ℥iv | 4 ,, | Spirits of wine . | lb.ii | 2pts. |

The spirits of camphor may be made, as hereafter directed.

### TINCTURES.

| | | | | | |
|---|---|---|---|---|---|
| Arnica . . . . | ℥ii | 2 oz. | Henbane . . . | ℥viii | 8 oz. |
| Balsam of Tolu . | ℥ii | 2 ,, | Laudanum . . . | ℥ii | 2 ,, |
| Calumba . . . | ℥viii | 8 ,, | Paregoric . . . | ℥viii | 8 ,, |
| Digitalis . . . | ℥ii | 2 ,, | Muriate of iron . | ℥ii | 2 ,, |
| Gentian . . . | ℥viii | 8 ,, | | | |

### BARKS.

| | | | | | |
|---|---|---|---|---|---|
| Calumba . . . | ℥ii | 2 oz. | Cinchona (Lancifolia) . . . . | ℥iv | 4 oz. |
| Gentian . . . | ℥ii | 2 ,, | | | |

### WINES.

| | | | | | |
|---|---|---|---|---|---|
| Colchicum . . . | ℥iv | 4 oz. | Ipecacuanha . . | ℥ii | 2 oz. |

### SYRUPS.

| | | | | | |
|---|---|---|---|---|---|
| Red-poppy . . | ℥viii | 8 oz. | Saffron . . . . | ℥viii | 8 oz. |

### OILS.

| | | |
|---|---|---|
| Castor-oil . . . | Oi | 1 pint. |

### ACIDS.

| | | | | | |
|---|---|---|---|---|---|
| Muriatic . . . | ℥i | 1 oz. | Nitric . . . . | ℥i | 1 oz. |
| Sulphuric . . . | ℥i | 1 ,, | Nitrous . . . . | ℥i | 1 ,, |

### LINIMENTS, LOTIONS, ETC.

| | | | | | |
|---|---|---|---|---|---|
| Camphor-liniment | ℥viii | 8 oz. | Goulard's Extract | ℥viii | 8 oz. |
| Soap-liniment . | ℥viii | 8 ,, | | | |

### OINTMENTS.

| | | | | | |
|---|---|---|---|---|---|
| Strong mercurial | ℥i | 1 oz. | Elder-flower . . | ℥viii | 8 oz. |
| Red, or nitric oxide of ditto . . . | ℥i | 1 ,, | Blister - ointment (Cantharides) . | ℥i | 1 ,, |
| Zinc . . . . . . | ℥iv | 4 ,, | | | |

### SUNDRIES.

| | | | |
|---|---|---|---|
| Diachylon (spread on moleskin) . . . | 2 yds. | One stick of caustic (Nitrate of silver). | |
| Soap-plaister . . . | 2 ,, | Gutta-percha tissue . | 3 yds. |
| Lint . . . . . . . | 1 lb. | | |

### THE DRUGS:—THEIR DOSES AND USES.

Carbonate of Soda; (dose, gr. x ad gr. xxx: 10 to 30 grains).—Highly useful for acidities and congestions of the stomach and lungs, by neutralising the acids of the primary organs of digestion—forming therewith a neutral salt:—its first effects are similar to those of effervescent draughts. It also removes excess of carbonic-acid gas from the lungs.

Carbonate of Magnesia; (dose, ℈ss ad ʒi: 10 to 60 grains.)
In moderate doses it has the same actions as the last, and is particularly useful for infants and children. In larger doses it acts as a gentle laxative, and also as an antacid.

Compound Tragacanth; (dose, gr. x ad gr. xx: 10 to 20 grains.)

Composed of one part each, of Tragacanth-gum, starch, and gum-arabic, with two parts of sugar.

It is used for congestive and irritative coughs, and as an expectorant.

Grey-powder; (dose, gr. ii ad gr. viii: 2 to 8 grains.)

Composed of three parts of mercury and three of chalk.

It acts as an antacid and alterative—stimulating the mucous secretions of the primary organs of digestion.

Ipecacuanha; (dose, gr.ss. ad gr. xxx: ½ grain to 30 grains.)

Indigenous to South America, and chiefly imported from Brazil,—having no doubt been used from time immemorial ought to be made aware of this simple contrivance;—for it is this class who are the chief sufferers.

The ventilation of mines is an opprobrium to the present age. I allude here to those mines only, which from their mineral properties generate a mephitic gas. The light carburetted-hydrogen gas of coal-mines is not of itself combustible, unless mixed in certain proportions with the atmospheric air; and hence is it, that the air of ventilation often adds to the danger from there not being an excess sufficient to neutralise it, but only enough to increase its explosive force. There are, no doubt, parts of mines more deeply situated and not immediately occupied by workmen, where accumulations of fire-damp or carburetted-hydrogen exist; and these should always be narrowly watched. All the parts in which the miners work are known and duly attended to by themselves; but in those which no miner traverses, such as old disused workings, the fatal gases are insidiously collected, and issue forth unexpectedly on their deadly errands. In ventilating a mine, therefore, no parts should be overlooked,—whether old or new workings,—or uncleansed of mephitic air.

It has been hitherto deemed a very difficult problem to ascertain the best plan for the ventilation of mines;—but to me it appears, that all gases of a noxious character may be drawn off, that all these operations are best performed at the surface, —to be received into proper gasometers or reservoirs, in order to be rendered fit for use by burning or consuming them. If such be not done, then they may be drawn to the surface, and there allowed to expand and lose themselves in the atmosphere itself,—which can readily be done by making a vacuum or several vacua, towards which they would most certainly rush. These are matters of scientific inquiry; for simplicity of action alone has to be considered:—and the end, after all, to be attained is, to put in requisition all the aids of science, in order that working in mines may be as safe an operation as any done on the surface;—and this, I verily believe, could be done;—nay, what is more, mines might be as easily lighted as ventilated; so that miners would not only be free from danger when at work, but able also to see well what they are about,—which they cannot do at present.

The next source for the generation of malarious gases is in the holds of ships, or in the ships themselves, arising either from the cargo, the bilge-water, or the timbers of which they are constructed. This does not apply solely to freight ships; for when we recollect all we have heard of transports and emigrant ships, with their frequently imperfect construction as respects all proper means of ventilation, no thinking man can wonder at the diseases which attack the living cargo on the voyage, nor at there not being a much greater amount than there is of sickness and mortality. Considering that this is so pre-eminently a naval as well as a mercantile country, I have frequently marvelled at the imperfect ventilation of ships in both services. The matter has been considered, and some plans have been contrived and executed in a few solitary instances; but nothing has been done commensurate with its importance,—certainly nothing, as far as concerns the fact of any uniform or universal system. In heavy gales and cross seas, with a ship under bare poles, crowded with human beings, having her ports closed and hatches battened down, the malaria from the ship herself, and the carbonic-acid gas from all the lungs on board, the steam and emanations from a compact mass of unwashed living beings, the odours of human and animal ordure, and of foul or damp clothing,—all these causes contribute to make the "'tween decks" a similar reeking den to that described at the opening of this chapter. The engine-rooms of the smaller craft in her Majesty's service, as well as the contiguous cabins and officers' rooms, are so hot and ill-ventilated, as almost to stew alive their unfortunate occupants; and these, with other similar cases in the same service, serve to fill a lengthy catalogue of instances of mismanagement and unscientific treatment. So much for the neglect of ventilation in ships.

To carry the subject on to the ventilation of churches, hospitals, union-workhouses, prisons, manufactories, dyeing and washing houses, printing establishments, and all other places where damp and unwholesome exhalations and radiations necessarily occur, and where warming, drying, and ventilating are or ought to be carried on in a perfectly combined, wholesome, and efficient manner, would swell this chapter to an unnecessary extent. Our churches are incomparably the worst-ventilated buildings that we have; for those of the congregation who are in the galleries receive all the exhalations from those on the ground-floor. The afternoon-congregation, again, receive all the benefit of the exhalations and exudations given forth in the morning; and those in the evening receive a compound allowance—that from both. How little, then, need we wonder, that fannings, and faintings, and fits are so common,—especially at the latter service!

At such times, moreover, you may notice a warm steam, composed of every variety of human gaseous elements, rising in a vapoury mist, forming what might be called an *albuminous* state of the atmosphere; all of which is amply proved by the dimness of the lamps, that lack oxygen for combustion, as well as by the reeking moisture on the walls and windows. This, too, occurs as often in the winter as the summer evenings;—and hence the sudden change of climate, which the congregation experience at the close of the service by meeting a piercing wind on emerging into the open air, is quite enough to account for many of our commonest lung-affections.

I have already shown that all improper ventilation, or warming with burnt air, produces a damp instead of a drying process; and if this affects all kinds of fabrics, what must be its effects on the human body? It is high time, then, that warming and ventilation were placed on a different principle to what they are at present,—if principle there can be said to be at all;—for pure atmospheric air should be the medium sought after, whatever temperature be required for all purposes. All the effects of the mephitic gases on the human body, whether from malaria or the crowding of large assemblies within any single building, are well known; and I have directed attention to the fact, that all *burnt* air is equally injurious. To point out the necessity of breathing healthful air is quite unnecessary:—the question is, how it may be obtained in large buildings in sufficient quantities. Supposing a room to contain an area of 3000 feet, with a height of twenty feet, and to contain 1000 people,—then, allowing only one cubic foot per minute for each person, and this amount of air to descend at the same ratio, this would give a supply of 60,000 cubic feet every twenty minutes, forming only an agreeable ventilation. This is what is wanted in churches more especially,—and likewise properly warmed atmospheric air of any temperature to suit the seasons can be made to descend, and the impure air to be drawn off on the ground-floor, or at the sides of the building, at the above rate.

As air expands by heat, it forces the cold air out of buildings; and therefore any amount of air can be drawn out of any building, or mine, or marine engine-room, or any or all parts of a ship. To do this by merely natural means, would occupy too much time, and the operation be too feeble. It will best be done, therefore, by a single or double vacuum. If a vacuum be made in any given apartment, free atmospheric air is sure to enter—the chamber thus becoming ventilated with most wholesome air. When, on the other hand, a warming apparatus passes through any building, then, on making another vacuum, the used or burnt air will rush into it, and a proper temperature be very quickly obtained.

It is not of the least use to attempt forcing air by any process of fanning into the warm air of any apartment; for this, as I have previously said, becomes strangled, and very soon acquires the same temperature as that of the air it has displaced. Yet this has ever been the system adopted; besides which, this process offends against the laws of attraction and gravitation, by forcing all the used air out at the top, and causing upward currents; whereas it should rather descend, as containing the heavier gases. I except always the carburetted-hydrogen from gas-lights, &c., which should be provided, if possible, with their own conductors immediately over them.

Proper ventilation, indeed, should always be carried on without draughts or currents of air; nor can it be effected artificially, unless under certain natural conditions;—and these are:

I. Purity of the air after being warmed,—
II. Uniformity of heat necessary for all specific purposes,—
III. A certain degree of moisture,—
IV. Regularity of pressure,—
V. Obedience to the laws of currents.

Now, all these I believe to have been attained by an invention patented by Messrs. Atkinson and Co.,—but which is not sufficiently known. I shall therefore describe it here, in order to draw that attention to it which it deserves, as well as to state what I consider to be its powers, its merits, and its capabilities of performance;—and this description will be better understood by referring to the diagram at the end of the chapter.

This apparatus is the adaptation of two cylindrical boilers,—the one within the other,—with an air-chamber between the two. *First.*—The fire or furnace is in the centre in the shape of a cone,—the base being formed by the fire-bars, which are two feet in diameter, two feet three inches high, with an opening six inches wide at the apex. The upward continuation of this opening is the draught-chimney, which passes through the centre of the steam-chest to the height of about one foot above the dome, which itself has a lid or cover. Thus, as the fire is fed from the top, this may, therefore, be called the feeding-box.

*Secondly.*—At right angles with this feeding-box, a smoke-flue is given off, which can be made shorter or longer, as the case may be, and carried out anywhere at pleasure. In this is inserted a throttle-valve, which can be turned to admit any amount of draught required for the combustion of fresh fuel; and when perfect combustion has taken place, the flue can be closed to retain the heat. This united formation of the furnace, feeding-box, and flue, constitutes an almost self-smoke-consuming apparatus.

*Thirdly.*—The first boiler over the furnace is very small, being only three inches in diameter at the base, widening as it reaches the apex of the cone, and contracting again higher up:—it contains very little water for the immediate action of the fire.

*Fourthly.*—The outer boiler is six inches wide all the way up, and is connected with the inner boiler by a continuous plate, which forms the roof of the air-chamber between them. These two boilers are connected together by several pipes opposite the fire-bars,—so that water is constantly running from the outer to the inner boiler, and the feed-water is supplied by a pipe to the outer boiler, at the bottom of which is a large waste-pipe.

*Fifthly.*—From the top of the boilers to the top of the dome is a confined space of about two feet six inches in diameter, which forms the steam-chest.

*Sixthly.*—The air-chamber has a diameter of five inches at the bottom and ten inches at the top, and contains certain pipes which are connected with the inner boiler, ascend vertically and pass through the connecting plate of the two boilers into the steam-chest. The outlet for the air is through the outer boiler, by means of an opening eighteen inches long by nine in width.

*Seventhly.*—This apparatus stands on a square iron plinth, which has a door in front, opening into an enclosed ash-pit. Another door at the side gives admission to the air, which passes upwards through the boiler, and out at the above opening.

*Eighthly.*—The fire-bars are constructed upon a pivot, moved by a handle outside the plinth; so that they can be turned up, to throw all the fire out into the ash-pit, and thus extinguish it, when not further required,—a contrivance which obviates the necessity of what is termed—*banking the fire.* The rapidity of combustion here is such, that there is no necessity for keeping fuel in a low state of ignition; and thus there is a great saving in its consumption.

A central fire thus constructed, of two feet in diameter and six feet six inches in height, burning almost at a white heat, can be well understood to be very powerful;—the consequence of which is that the small amount of water immediately under its influence is very readily converted into steam, and being supplied as rapidly with fresh, soon makes the whole water in both cylinders of the same temperature. This apparatus satisfactorily proves a problem, till now unsolved, of the incomparably rapid circulation of water in the process of generating steam. Indeed, there is no time for the water to rest anywhere; inasmuch as, when the apparatus is at full work, the water flies rapidly round and round through both cylinders, so that what is in one is always ascending, while that in the other is descending,—thus completing the circuit. It is generally supposed, that circulation takes place in the common boiler; but that cannot be the case. Whatever be the amount of ebullition, there must be always a dead-weight of water, and hence arises the deposit in common boilers. To return to our apparatus,—the steam thus rapidly generated in Atkinson's boiler flies into the steam-chest and up through the pipes; while the more aqueous particles descend into the outer cylinder, though only to a very trifling extent, reducing the temperature of the water inside.

Atkinson's apparatus occupies very little space, being only about five feet square by nine feet in height, requires no brickwork of any kind, is nearly self-smoke-consuming, will burn any sort of fuel, and work a six-horse-power engine. The power it has of drawing the air through the air-chamber, and the rapidity, also, with which the air passes through it, are very great,—the air thus supplied being of the purest character from not stopping long enough to be burnt or otherwise deteriorated; for it has been proved capable of being breathed at a temperature of 120° of Fahrenheit. At a public trial of this boiler at Mr. Cater's, of the Grove boiler-works, Southwark, on the 1st of January, 1857, the evaporation of water during a three hours' experiment was found to be at the rate of four cubic feet per hour,—enough to drive a four-horse-power engine,—and the consumption of coal was twenty-eight pounds per hour, and a rapid passage through the air-chamber of cold air, the quantity of which was calculated to exceed 3000 cubic feet per minute. The safety of this boiler, again, is not one of its least merits, as it would be almost impossible for an accident by bursting to occur; because the water is never still, when the boiler is at work, and it is almost equally impossible for any incrustation to take place in any part.

At the bottom of the outer cylinder a waste-pipe is fixed, which when opened can blow-off any deposit or débris that the water might contain, as often in the day as may be thought necessary,—thus keeping the inner plates and pipes in a perfectly pure state. As far as regards its capabilities as a steam-boiler, some improvements are evidently required;—as in that case the air-chamber would be needless, and of course so much more heat could be retained. I am of opinion, that if a series of these boilers of increased size were employed for the use of ships, the necessary amount of steam would be secured at less sacrifice of space than by the furnace and boilers now in use; and one great defect would be obviated,—the insufferable heat of the engine-rooms—a heat that no means can reduce, and which is seldom below 100° to 120°. There would be another end also gained;—the steam generated by this apparatus is much drier than is usually obtained, and would greatly tend to prevent the packing of the cylinders of the engine; for it is well known, that the cylinders condense the steam, and so cause great loss of power,—whereas, were the steam drier, this would less frequently occur.

At all events, this is an entirely new adaptation to the purposes of steam-generating, and presents an extraordinary natural resemblance to the animal organism. The furnace may be compared to the vital heat; while the boilers and their connexions represent the heart and blood-vessels, and the air-chamber the lungs. The furnace being thus enclosed requires very little more attention than seeing to the fire-bars that they are kept clear; nor is any great amount of heat felt, when the door is opened for this purpose;—in short, nothing at all in comparison with that evolved on the stoking and feeding of the furnaces attached to common boilers. Were a series of Atkinson's boilers fitted up in the deep holds of ships, which are difficult to ventilate,—a chamber could be easily constructed above them, which would be called the feeding-room, thus making two distinct departments, and, consequently, a twofold division of heat,—the feeding-box being fitted with a valvular apparatus, which could be always kept charged; so that, by pulling a chain, the stoker below could feed his fire when necessary.

Having thus stated my opinion of this apparatus as a steam-boiler, my next object is to speak of it as a ventilating apparatus. Any amount of pure, hot, unburnt atmospheric air of any temperature could be conducted through a building by means of suitable conduits—such as wooden troughs lined with tin or zinc, or even highly glazed pipes ; by which means we should succeed in obtaining pure oxygen, regulated according to the heat required,—a desideratum that has ever appeared to me the great difficulty, inasmuch as the hot air usually supplied, not being pure, renders ventilation unnecessarily extensive and persistent, while by this apparatus the required heat could be forwarded, having been *already* properly ventilated. *Pure* oxygen, as before observed, can be breathed at a very high temperature and with perfect satisfaction ; whereas, were it mixed with the least appreciable quantity of carbon, it gives the suffocating sensation which is experienced in large assemblies. The heat in some of the furnace-rooms of ships (from 128° to 140° Fahrenheit) is perfectly killing to the stokers ; because it contains an excess of carbon, which cannot be always avoided, though innumerable appliances have been resorted to for that purpose. Nevertheless, the same high temperature of pure oxygen can be inhaled with as much safety and comfort as at 60°.

From a small apparatus of this description the author was enabled some years since to obtain the action of the steam-jets for the purpose of producing a vacuum to draw off foul air from any part of a building, as well as to try the effect of the horizontal currents of pure warm atmospheric air charged with moisture. This led to the trial of drawing off the air laterally from the apartment ; and it was found that, instead of carrying it out at the top of the building, it could be removed from any given point at the sides of a room,—thus, as it were, slicing the air into layers. This is the principle I would suggest for ventilating the furnace-holds of ships by means of the steam-jets ; for pure air from above would always follow ;—and thus these Plutonian or Satanic rooms might be made more endurable. It is in vain to use the fanning or brazier apparatus ; for they yield only a very partial benefit.

We have yet to see the effect in this country of the application of pure oxygen at a high and steady temperature in very large conservatories. The radiated heat there used has hitherto been so mixed with carbon, that without great care and constant vigilance the plants must inevitably become diseased. The houses at Kew, I believe, could be ventilated in the purest and most complete manner at half the present outlay, which probably does not amount to much less than 10,000*l.* a year. Under the present system, there is always great waste of heat, rendering ventilation necessary to reduce the amount of carbon that accompanies it; whereas the true principle would be—to supply only the amount of heated oxygen required. The only ventilation necessary would then be effected by reducing the carbon evolved from the plants themselves. In the former case, the carbon in the hot air makes it so dry, as imperatively to call for the constant watering of the plants; whereas in the latter case the steam-jet could be applied and the air moistened, as by a gentle dew. In this latter case, likewise, the plants would be always healthy, and their flowering capacities, as contradistinguished from their vegetation, would be much more scientifically managed. These same principles, if carried to the fruit-forcing houses, would produce a size and flavour of fruit hitherto quite unknown. As things are at present, carbon does the principal part of the business at the risk of insects and disease;—which, combined with any accidental neglect, alike destroy its size, crop, and flavour; whereas pure warm oxygen would require but a tithe of the attention and anxiety, and would at once produce a healthy growth, large quantity, and an excellent quality of fruit. To make air warm and then be compelled to purify and ventilate it afterwards,—has always appeared to me a very round-about process; and I cannot call to mind any means now adopted to apply hot air, except on this principle. To get it pure, therefore, at first, and to be able to direct it at any given temperature, or in any given quantity to every part of a building, seems to me a far simpler process.

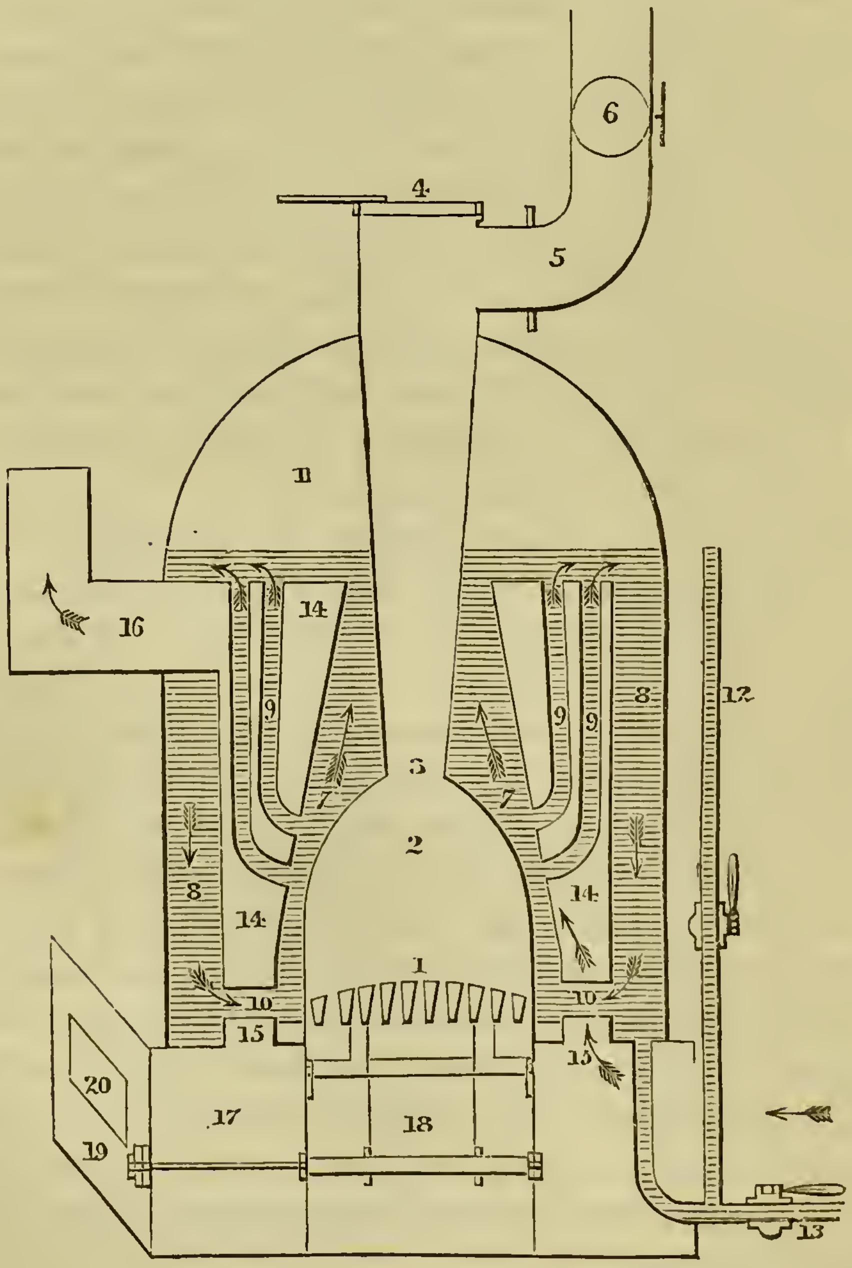
For large public buildings, I have never seen any apparatus so well adapted as Atkinson's, or at all approaching it—as regards the true principles of warming and ventilation in all the points I have laid down;—namely, purity of air, uniformity of heat, degree of moisture, regularity of pressure, and obedience to the law of horizontal currents. For the use of ships, workhouses, hospitals, and asylums, I believe, it would be invaluable. Its steam-power could always be of service and made available for many purposes. It could supply any amount of hot water for the use of the inmates; and with an apparatus attached, it might be made available for cooking to any extent. A small chamber, too, might be devoted to drying linen by a pure, brisk, hot atmosphere introduced through it at 120° of temperature,—and this without the risk of destroying its fabric, as is usually done by the carbon in hot closets. Such an apparatus, erected in any convenient part of a garrison, would be of immense service, and effect a saving in all its washing departments. Should the steam not be wanted for motive power, it could be condensed by a simple process; and on board of ships the sea-water could be distilled for daily use, and even for the boilers at present in use, at a great saving of the labour expended in cleaning them from the incrustations of salt water.

I need not here further mention the diseases that are the natural consequences of living in unventilated places, or the noxious influences arising in the systems of either plants, animals, or man, from morbid or impure air, or the malaria therefrom:—these are patent to every one. The history of our epidemic diseases should ere now have convinced us of this. The Legislature publicly recognises the fact by its acts. It has passed the Burial-in-towns Act, the Metropolitan Amendment Act, and other measures, for the express purpose of counteracting the pernicious effects of any or all causes of disease from miasmata arising from whatever sources; and it must still keep a vigilant eye on this most important branch of its duties, as a paternal government. I am only, therefore, adding my mite, as every good citizen should, in pointing out still further the best way of procedure towards attaining a perfect system of warming and ventilation.

# ATKINSON AND CO.'S PATENT STEAM BOILER

AND

# VENTILATING APPARATUS.



## DESCRIPTION.

1. Fire bars, two feet diameter, three inches above the water-level.
2. The furnace, two feet six inches high.
3. The opening to ditto at the apex, six inches.
4. The feeding-box, with lid, twelve inches opening.
5. The chimney.
6. The throttle-valve.
7, 7. The inner boiler over the furnace, three inches at the base, four in opening to dome.
8, 8. The outer boiler, six inches at base.
9, 9, 9. The vertical pipes from inner boiler.
10, 10. The connecting water-pipes between the two boilers.
11. The steam chest or dome.
12. The outer feed-pipe.
13. The waste-pipe.
14, 14. The air chamber.
15, 15. The opening to ditto in the plinth.
16. The outlet for the hot air, nine inches by eighteen inches.
17. The plinth, five feet square by sixteen inches high.
18. The ash-pit door, having a smaller door in its centre.
19. The handle for turning the fire-bars up to throw out fire into ash-pit.
20. The door to admit air through three sides of the plinth.

# CHAPTER XXIII.

## CHARLATANISM AND QUACKERY.

Quacks generally considered—Unlearned and ignorant quacks: their prosperous condition: patronised especially by the religious press, and through it, by the religious public—Government-patronage of quackery: its cause—Remedy proposed—Address to the profession; also to the pill-swallowing public—Learned quackery, and its general history—Homœopathy and its infinitesimal doses: its great dependence on the faith of the patient: its inconsistencies—Cures only effected, where Nature would cure of herself—Hydropathy: its baths, wet sheets, and régime: how far it does good, and where it ceases to do so—Electro-magnetism, mesmerism, clairvoyance, table-rapping, &c.—*Benevolent* quackery exposed—The profession must un-quack itself, to put down quackery in others.

A volume might be written on the subject of quackery without exhausting the subject,—which is of much more serious import than is implied by its designation. In fact, to do it any degree of justice, it should be considered at some length, and in many various aspects; whereas the limits of this work compel me to treat it very summarily. I shall content myself, therefore, with a few observations adapted for popular use, intended simply to open the eyes of the general reader to the dangers threatened. For the sake of simplicity, then, I shall divide the whole legion of quacks into two distinct bodies,—the *unlearned* and the *learned*,—bestowing a few paragraphs on each.

The unlearned quack—the obtuse, ignorant blockhead—naturally comes first:—in fact, it is impossible to put him in the back-ground; for he bustles forward everywhere, announces himself in every company to which he can gain admittance, placards himself on every wall, in every shop-window, and takes possession of the columns of our newspapers, the fly-leaves of all our periodicals. The fraternity, let me add, boasts of a high antiquity, and it might form an interesting subject of discussion, whether we, who form the present race of mankind, or our progenitors, have listened most credulously to their flaming professions. One thing, however, is quite apparent, and it is this:—that the increase of quacks, and quack remedies and nostrums, has ever been commensurate with the increase of our population. It is evident, also, that the worldly condition of these impostors has amazingly improved since the days of our forefathers.

The quack doctor of the last century, in his broad-brimmed, pointed hat, long flowing beard, and Vandyked collar, travelled through the country in his own peculiar vehicle, accompanied by a fancifully-dressed youth, who cried in a shrill voice—"My father cures all sorts of distempers," to which the modest parent responded—"The child speaks truth;" or else by a sturdy, impudent jester or fool, who filled the pauses of his master's learned discourse with sallies of mirth and fun, too often highly-flavoured with personal allusion of the least delicate character. This worthy was for the most part content to practise his plundering propensities on the poor peasant or besotted hind at fairs, mops, and merry-makings. Now, the quack of a later day has been taught by experience, that ignorance and credulity are by no means exclusively confined to the lowly-born and illiterate, and he has reaped a golden harvest from this discovery. Assuming the title of professor and the symbols of authority, he now dwells in a magnificent mansion, and rides in a handsome chariot; while the functions of the bawling boy or indefatigable jester he transfers to the press, which does the work for him infinitely better, devoting itself soul and body to his interests.

Mark, too;—the pill-driver has the sagacity to prefer the *religious press*,—that press, which—though professing to diffuse the maxims of peace, mercy, and love, "the medicine of a mind diseas'd"—yet scruples not to disseminate in the same pages the murderous mischiefs of the quack, for the sake of participating in the plunder. That the religious press does not stand alone, (I wish it did,) as the trumpeter of false promises, is no excuse for the course, that, with a few rare exceptions, it has so generally adopted. That it should lend its powerful aid *at all* in the furtherance of frauds so vile, is an anomaly so glaring and enormous, that it is scarcely possible to imagine on what grounds it can be defended. It is, however,—and there is no denying it,—a fact very well known to the whole tribe of nostrum-mongers, that advertisements in a religious publication are invariably productive of a larger consumption than those announced by any other organ. Why is this? Simply, I believe, because such publications are read by a simple-minded, unsophisticated class of persons, less intimate with the villanies of the world, and consequently less open to suspicion. Be this as it may, however, the fact is certain.

Let the religious publishers look seriously at this matter. They know well enough, that the sovereign specifics, with which they fill their pages and columns for a consideration, are but so many mendacious pretences for extorting money from the ailing and credulous. In becoming the tools of the quack, then, they lower themselves to his level by countenancing falsehood and deceit; for what faith can we place in a religious organ, which, while solemnly warning its readers to prepare for a future state, informs them, that at the moderate price of thirteenpence-halfpenny (family boxes containing three—two-and-nine!) they may, if not dispense with the condition of mortality altogether, at least defer its fulfilment to an indefinite period?

The more sensible and reflecting portion of the public have long been fully aware of the crying sins of this blockhead race of quacks, and energetic representations to the governing powers have not been wanting, setting forth the abominations of the system, and urging the claims of an ignorant population to be protected from such assaults on their credulity. Nevertheless, the Government does nothing, and will do nothing,—and for a reason which, if not very creditable, is at least sufficiently apparent. This tribe of pill-vendors and pretended hygeists enjoy the patronage of the Government, and have its sanction to poison the people to any extent they can accomplish by the arts of lying and puffing,—simply, *because* they pay to the by the Indians. It was first introduced into Europe A.D. 1618.

In small doses, from half a grain to two grains, it acts as a sudorific by causing slight nausea, and is therefore very useful in infantile disorders. In larger doses, ranging from ten to twenty grains in water, it produces vomiting. It should always be given, like every other emetic medicine, *on a full stomach.* It is possessed, also, of purgative properties.

Ipecacuanha Wine ;—(dose, ♏ii ad ʒiii: 2 minims to 3 drachms.)

Composed of ipecacuanha-root ℥i (1 ounce) and sherry wine Oi (1 pint). Steep for fourteen days ;—then strain.

This is a most valuable medicine, as may be seen from its great range of doses. Combined with the alkalis in small doses for infantile diseases, it has the effect of gently stimulating all glandular actions. Infants at the breast should be tenderly and mildly treated; and minute doses, even of one or two drops, exert a beneficial influence. As they increase in years, the dose may be increased ;—nay, even when very young, if it be necessary to empty their stomachs by an emetic, from half a drachm to a drachm of this wine may be given in any proper vehicle for the purpose of unloading their systems without injury to their delicate organs; whereas the mineral emetics, such as the antimony, often act with great violence. Some robust children are only influenced by the antimonials ; while others of more tender organisms, should be treated by vegetable nauseants, such as ipecacuanha. It is diuretic, sudorific, aperient,—and acts most beneficially both on the mucous membranes and glandular system.

Jalap ;—(dose, ℈ss ad ʒss : 10 to 30 grains.)

The tuber of a species of convolvulus, indigenous to Mexico ; introduced into Europe 1606.

Acts as a purgative, especially with children having hard and swollen bellies ;—destroys and brings away worms. In sudden cases of croup, a full dose once or twice repeated will remove its dangerous character.

Nitre or Nitrate of Potass ;—(dose, gr. v ad gr. xxx : 5 to 30 grains.)

Acts as a diuretic, and causes perspiration;—is also a purgative, and a stimulating expectorant. In large and full doses, it relieves dropsies brought on by any sudden arrest of functions, as well also as the dropsies incident to organic diseases.

Opium;—(dose, gr.ss ad gr. iii: ½ grain to 3 grains.)

This is the exuding juice of the large white poppy (*papaver somniferum*), which is obtained from the living plant by incision with a knife, and exudes freely, becoming afterwards thickened on exposure to the air;—in which form it is termed *crude* or *lump opium.*

It has an acid base—namely, *meconic acid;* and its acting principle is the meconate of morphia. This acid, however, is neutralised and destroyed by the acetic and other acids; and the alkaloid base (*morphia*) becomes allied to the latter in several preparations,—such as the acetate, citrate, muriate, &c., of morphia; thus getting rid of the gummy resinous matter forming the larger mass. Nevertheless, this possesses a powerful bitter principle, on which much of the value of the drug depends,—especially in fevers and inflammatory actions of the internal structures, and the pains arising therefrom.

There are many other preparations of this drug used in medicine;—such as the confection, the electuary, the extract, the pill;—Castile-soap and opium;—compound-chalk and opium-powder;—Dover's-powder;—laudanum, or tincture of opium;—Battley's solution;—paregoric elixir;—ammoniated tincture of opium;—liquorice-lozenge with opium;—and other combinations:—all showing the great variety of forms in which opium is introduced into the system, and bringing out its acting principle or base, its narcotic bitter, and other properties, according to the uses and ends desired.

Tincture of Opium, or Laudanum;—(dose, ♏v ad ♏xx: 5 to 20 minims.)

Composed of opium ʒv (5 drachms), rectified spirits of wine ℥viii (8 ounces):—steep for fourteen days, and strain. Nineteen minims contain one grain of opium.

In small doses stimulant; in larger, anodyne, sedative, and narcotic. As a rule, it should not be given, when the tongue is furred, or coated and moist. If from this state, however, that organ becomes suddenly dry and brown, denoting incipient inflammation, it may be given,—though at once withdrawn when the tongue becomes moist again. Again, if the tongue be moist and pale, without fur, it should not be given; as it would then promote congestive action, increase the fur, and so render the tongue foul. In all these cases, the henbane is the best sedative, combined with alkalis. Intense pain, however, may—if absolutely necessary—be relieved by one dose of opium; but it must not be continued. To do so, indeed, would be the height of imprudence; because, as the system is in a state of congestion, it requires rousing—while opium produces the very reverse effect. It is for this reason, also, that it is so injurious in bronchial congestions, when used in the form of linctuses. On the other hand, however, if the tongue be clean, bare, red, dry, or brown, the opium is called-for in preference to the henbane; and in these cases it were well to combine it with an acid,—the preparation of opium best suited thereto being the paregoric.

A strange error with regard to this drug seems to me to run through all treatises on medicines, and to be propagated by all our professional writers,—namely, that it is not, as a general rule, to be given in purely inflammatory actions. Now, so far from this, my own experience, confirmed also by sound Glossological rules, convinces me, that at these times the greatest quantity can be taken with perfect safety and the best effects,—the very same large doses condemned by many authors proving beneficial, even to the saving of life.

I am convinced, in fact, that when a thorough acquaintance with the appearances of the tongue, both as indications of disease and guides for the administration of medicine, shall have become more general in the profession, they will, as a body, obtain a more perfect hold on disease, and be enabled to give remedies with far greater certainty of success. Thus, in diarrhœa or cholera, when the tongue is white or furred, a simple dose of prepared-chalk acts as an antacid, and one grain of powdered opium in a pill relieves pain; whereas, were laudanum combined with the chalk-mixture under these circumstances, that medicine would induce feverish symptoms, with thirst; because laudanum arrests secreting actions. In case of a red, dry tongue, likewise, accompanied with thirst, if the compound chalk-powder and opium be given, the alkali only aggravates the evil; while, on the other hand, opium or laudanum given alone acts most beneficially;—all of which shows, what I would once more insist on,—the value of the tongue, as indicating the condition of the secretions, and so preventing a great but very common error in treatment.

The same argument applies with regard to all the preparations of opium. As respects Dover's-powder, for instance,—(which is the compound ipecacuanha powder of the pharmacopœia,) if it be used with a dry, small, red, and parched tongue, no sudorific action will follow, as was intended; but the skin will become heated, and the face flushed and hectic;—because an alkali and an opiate have been used, when the case required an acid with an opiate. Dover's-powder, however, may be used with advantage in the slight irritations of a cold, producing a hot, feverish state of the system, combined with a furred, moist tongue;—for in this case the sudorific effect will ensue. With regard, also, to the combinations of opium with the aromatics, similar rules will prove unerring.

**Dover's-powder**;—called also **Compound Opium-powder**, and **Compound Ipecacuanha-powder**;—(dose, gr. v ad gr. xx: 5 to 20 grains.)

> Composed of opium and ipecacuanha, one part each, and sulphate of potass, eight parts;—so that ten grains contain one of opium.

To allay irritations in the congestive inflammatory actions,—or in fevers,—in gout, rheumatism, dysentery in its milder forms, &c.,—and in congestive states, when colds and catarrhs are present, to promote perspiration; for which cases it is taken in gruel at bed-time. It may happen that this powder will not have the desired effect on the first night; yet on the second or third it will do all the service that could have been wished.

**Paregoric**, or **Paregoric Elixir**,—called also *Camphorated Tincture of Opium*, or *Compound Tincture of Opium*;—(dose, ♏v ad ʒi: 5 minims to 1 drachm.)

Composed of camphor ℈i (1 scruple), opium and benzoic-acid, ʒss each (½ drachm each), spirits of wine Oi (1 pint):—steep for fourteen days, and strain.

Anodyne, sedative and sudorific. In minute doses for infants, combined with alkalis, it allays irritation, and soothes pain, without arresting any function. The doses may be increased for older children. It is useful, likewise, in slight inflammatory coughs. It combines well with either a stimulant or alkaline expectorant, and is useful in congestive coughs, when used in small doses,—as well, also, as, combined with acid cough-mixtures, in inflammatory actions of the bronchial-tubes and in bronchitis. In large doses it is most beneficial, when combined with Epsom-salts;—as it allays the griping sometimes occasioned by the latter. It is highly useful, likewise, when combined with Epsom-salts and sulphuric-acid, in piles. Indeed, it seems to be an intermediate anodyne between henbane and the direct opiates.

Syrup of Red-poppies;—slightly anodyne, and used with the acid-mixtures and gargles, which it makes more grateful to the taste, and pleasanter in use.

Syrup of Saffron;—tends to take off the rawness of any of the alkaline medicines,—especially when prescribed for children, and is beneficial in measles and eruptive diseases.

Sugar added to cough-mixtures and stimulating expectorants, with some of the balsam of Tolu, is equal to syrup of Tolu, and allays irritation.

Rhubarb (*Turkey*);—(dose, gr. v ad gr. xxx: 5 to 30 grains.)

Small doses, *from five to ten grains*, to adults, act as a tonic and stomachic, and form what is called "the dinner-pill," when combined with some warm aromatic gum, as guaiacum, &c. In larger doses it is laxative, and in larger still, purgative. It is more useful, however, in infants' and children's complaints, than in those of adults,—when given in moderate doses, or in combination with other powders.

Scammony;—(dose, gr. ii ad gr. x: 2 to 10 grains.)

It stimulates the mucous secretion of the bowels, and removes disintegrated portions of mucous membranes, which often obstruct and irritate the alimentary canal,—producing slimy stools. It should never, however, be given, unless the tongue is furred, slimy-looking, and moist. This is especially useful to infants and children in combination with other powders, as it destroys and brings away worms.

TARTARISED ANTIMONY;—(dose, gr. $\frac{1}{16}$ ad gr. iv: 1-16th of a grain to 4 grains.)
The most appropriate way of administering this medicine is —to mix one grain with four drachms of water by rubbing it down in a clean mortar. Every drachm will thus contain a quarter of a grain. It may then be given in doses from fifteen minims (♏xv), containing one-sixteenth of a grain each, and upwards—frequently repeated. It is most useful in all congestive states of the system, and in coughs from bronchial congestions, when the tongue is loaded or furred upon the centre, —acting as a stimulating expectorant, and thus relieving the lungs. It likewise stimulates the secreting powers of the stomach, producing a slight nausea.

When combined with the alkalis and their carbonates, it acts most beneficially upon the glands, and more particularly the liver,—inducing perspiration on the skin, and increased action of the kidneys. It is alterative likewise, and gently laxative. No other drug, in fact, has a like curative action in cleansing, purifying, and purging the system in its loaded or congested states, without doing violence thereto, or remaining therein, as it is free from all cumulative properties;—besides which, its doses can be very nicely regulated to attain all its curative benefits.

In large doses, it acts as an emetic;—and in the event of anything pernicious having been eaten, or in congested conditions of the stomach—denoted by a foul and furred tongue —especially when convulsions or apoplectic fits are present, it often prevents the accompanying paralysis of these attacks. It should never, however, be given to infants, or even children, unless most urgently called for;—neither should it be administered in any inflammatory action of the alimentary canal, nor when the tongue is clean or red. On the whole, when well handled, it is one of the most useful drugs in the pharmacopœia.

N.B.—In medical works generally, tartarised antimony is considered incompatible with the alkalis and their carbonates; —but this I believe to be wholly a mistake, as I have often proved it by a large experience in their combination.

COMMON PREPARED CHALK, or CRAB'S-EYES;—(dose, gr. x ad ℥i: 10 grains to 1 oz.)
In small doses for infants and children it is highly beneficial as an antacid, and for its power of absorbing the superfluous watery secretions of the alimentary canal, in which respect it differs both from the soda and magnesia. In larger doses, it relieves excessive watery evacuations. In thin, small, delicate infants, too, it prevents them from too quickly losing their vital elements, and—when gross and large—hinders them from being too suddenly depressed by liquid evacuations. In active acid diarrhœas, where the tongue is foul or coated, it acts as an antacid, and checks them.

When acid diarrhœas have caused the complete evacuation of all fœcal matter, or nearly so, from the bowels, and these actions are still in force, very large doses of chalk—such even as an ounce diluted in an ounce and a half of water—may be given with advantage, and continued till the action stops. Unless this is done, which will be clearly indicated by the tongue being moist and furred, or white and flabby, inflammation will set in, when the reverse symptoms will be noticed—namely, a dry, brown, or red tongue;—in which case the acid treatment is indicated. It is always judicious, therefore, to prevent the higher orders of disease from occurring, by correcting the causes that lead thereto;—nor should it be forgotten that disease is ever marked by gradation and law of action.

EPSOM-SALTS, or SULPHATE OF MAGNESIA;—(dose, ʒii ad ℥ii: 2 drachms to 2 oz.)
The use of this very popular purgative is well known. Small doses, largely diluted with hot water, and allowed to cool, act beneficially when frequently repeated. They are very cumulative, however, in some systems under certain conditions; and there are some, with whom they will not always act promptly. Care should then be used, that too much may not be suffered to collect in the system, so that, when an action does occur, it may be continued to excess. One large dose, well diluted,

should be allowed its own time to operate. Salts should always be dissolved in the proportion of one ounce to two ounces of boiling water, and allowed to cool.

QUININE;—(dose, gr.ss ad gr. v: $\frac{1}{2}$ grain to 5 grains.)

The combination of the alkaloid, or acting-principle of the cinchona bark, with an acid, forming a salt.

This is a most valuable salt, combined with an intensely bitter element. Its effect on the system is, to supply it with a bitter principle, while the elective action of the system itself takes either the alkaloid or the acid,—according as it has need of either. It is frequently given without certainty, as is proved by its often doing rather harm than good, while, at other times, it acts with decidedly beneficial effect. Indeed, whatever the symptoms may be that lead medical practitioners to administer quinine, it can never be given with that certainty which all medicine should have, unless the general condition of the patient's secretions be well understood;—for on the failure of the one rests that of the other, and the tongue is here the truest guide.

Decoction of bark with carbonate of soda will, it is well known, act more beneficially at one time than quinine, while at another the reverse will take place—and that, too, under apparently similar circumstances. Now, reference to the tongue makes all this clear. Whatever the disease may be, under which the system labours, and one or other of these agents seems to be required, in case of the tongue being furred, or coated, and moist, the alkaline form should be employed; whereas, on the other hand,—if that organ be pale, but neither coated nor loaded, or else red, clean, glary, or dry,—then the quinine is the most proper medicine to be employed. In this instance, too, it should be combined with sufficient acid to dissolve it, or even an additional quantity besides.

In all febrile and inflammatory actions great sympathy always exists between the stomach and large intestines. When the stomach, for instance, loses any of its digestive secretions, or its free gastric acid, the bowels cease to act, and the tongue becomes dry, attended with thirst. In this case the benefit of quinine is at once apparent; for its bitter principle relieves the thirst, and lessens fever by so doing, while the stomach itself receives the benefit of the alkaloid;—its inflammatory or febrile action having first been relieved by the acid. Meanwhile, the large intestines also sympathise in this sudden restoration of functions, and are themselves relieved by the same acid of any inflammatory action that may have been set up therein. In short, the use of quinine can never be so clearly pointed out as by the appearance of the tongue, the successive changes of which at once manifest its beneficial action, or suggest its discontinuance.

Camphor;—(dose, gr. i ad ℈i: 1 to 20 grains.) This is a most valuable drug, and has a variety of actions;—for it is a stimulant, antispasmodic, sedative, anodyne, and narcotic,—acting also on the skin as a diaphoretic. It may be given in combination with almost all medicines,—whether acid, alkaline, or neutral,—with decoctions or tinctures, or with any forms of powders or extracts,—and for all diseases, whether congestive or inflammatory, or in low, depressed states of the nervous system, or where there is loss of power and debility, in the absence of either congestive or inflammatory actions. Nevertheless, while even the smallest doses constantly repeated act with advantage, it is not prudent to give doses of more than twenty grains at any one time.

> Camphor is very useful when kept in the form of spirit, which is made by dissolving ʒi (one drachm) of camphor in ℥i (one ounce) of rectified spirit. Thus, eight or ten drops will contain about one grain of camphor.

Compound Extract of Colocynth;—(dose, gr. ii ad gr. xv: 2 to 15 grains.)

> Composed of colocynth or bitter-apple two parts, extract of aloes four parts, scammony one part and a half, and cardamoms $\frac{1}{3}$ part.

It acts as a cathartic, laxative, aperient, and drastic purgative, and is the foundation of many forms of aperient pills, besides being used by itself. Care, however, must be exercised in its use by all persons subject to hæmorrhoids or piles, on account of the aloes it contains; for it is the property of this latter drug to act on the large intestines, and it might thus produce that most annoying complaint, which would otherwise have remained in abeyance.

Extract of Rhubarb;—(dose, gr. v ad gr. xv: 5 to 15 grains.)
In small doses, this acts as a stomachic,—in larger, as an aperient and laxative. It may be beneficially used, also, in combination with other aperient medicines.

Spirits of Nitric Æther, or Sweet Spirits of Nitre;—(dose, ♏x ad ʒi: 10 to 60 minims.)

> Composed of rectified spirit 7 parts, and nitric acid 1 part.

Refrigerant, diuretic, diaphoretic, and antispasmodic. It has very extensive uses, acting on the skin and kidneys, producing cooling and refrigerating actions through the whole body, stimulating all the secreting and excreting organs, as well as the secretions themselves;—and in this way it allays spasms and spasmodic actions. It is highly useful in all congestive and acid states of the body, as its spirit volatilises with rapidity. It combines freely with all alkaline remedies, is useful in low febrile, inflammatory conditions, to rouse dormant actions, and proves effective in combination with the acids.

In active fevers and inflammations, with a red tongue, it is not called for,—nay, often does harm, inasmuch as the vital elements are then rushing too quickly from the body, and require rather to be held in check than stimulated. It assists the stimulating expectorants in coughs, asthma, bronchial congestions and sluggish glandular actions. It may be given in all cases of foul, coated, or loaded tongue, and combines well with the henbane, when a sedative is required, though not so well with opium or any of its preparations.

Spirits of Sulphuric Æther;—(dose, ♏x ad ʒi: 10 to 60 minims.)

> Composed of sulphuric æther 2 parts, alcohol 1 part,—sulphuric æther itself consisting of rectified spirit 3 parts, and sulphuric acid 2 parts.

This drug possesses similar properties to the sweet spirits of nitre, though its actions are quicker and more stimulating. It is for this reason used in lock-jaw, tetanic spasms and twitchings, in epileptic fits, sudden depressed states of the system, and collapse.

Sal-Volatile;—(dose, fl. ʒss ad fl. ʒi: ½ drachm to 1 drachm.)

> Composed of muriate of ammonia ℥v (5 oz.), carbonate of potass ℥viii (8 oz.), cinnamon and cloves, each ʒii (2 drachms), rectified spirit and water, each Oiv (4 pints). Mix, and distil to 6 pints.
>
> *Note.*—Thus, the sal-volatile in such common use is an alkaline preparation, that can either be taken internally or, from its aroma and pungency, smelled at by the nose.

It acts as a stimulant in languor, faintings, acidity of the stomach, flatulent cholic, spasms, nervous debilities, hysterics, and weakness of stomach, and is also a sudorific. Its popularity is well established; and, when properly combined with other alkaline remedies, it is still further generally useful.

Rectified Spirits of Wine.—This is in general use, and indeed indispensable for the formation of all the tinctures and wines of the various drugs. In a medicine-chest it is extremely valuable for dissolving the camphor for camphor-spirit, or for making up opium-pills from the powdered opium, causing the mass to cohere in a proper consistence for rolling, as well as for other purposes. It is the acting principle of all intoxicating liquors. In cases where inflamed parts require suddenly cooling, one portion of alcohol or spirit of wine to five of water will make a good lotion. When linen rags are saturated with this and applied to the parts, the heat evaporates the alcohol quickly, and in so doing refrigerates the parts themselves. This action, therefore, is sedative and cooling.

Tincture of Arnica;—(dose, ♏x ad ♏xx: 10 to 20 minims.)

This is a pleasant bitter; but where gentian and calumba can be had, they are preferable. The reason of introducing it for family use is on account of its useful properties when applied to wounds with a view of stopping their bleeding, or to contused and bruised parts for dispersing the swelling. A piece of lint or linen rag dipped in this tincture and laid over a bruised part considerably hastens its restoration to a natural condition. It may, also, be used as a stimulating application, combined with soap or camphor liniments; and in this way it is especially useful in unbroken chilblains.

Tincture of the Balsam of Tolu;—(dose, ♏xx ad ʒi: 20 minims to 1 drachm.)
This is a pleasant and useful stimulating expectorant in all congestive coughs and bronchial congestions, which latter are truly indicated by the furred and coated, or loaded tongue, and yet are very commonly mistaken for bronchitis, which is an inflammatory action, and attended with a red, clean, and dry tongue. Combined, as you will presently see in the formulæ recommended for these occasions, it will be found a valuable medicine.

Tincture of Digitalis;—(dose, ♏x ad ♏xxx: 10 to 30 minims.)
Sedative and diuretic;—has a specific action on the heart, lessening the irritability of that organ and lowering the pulse. It is useful in sudden inflammatory actions of the system, that bring on a general feverish condition; and it prevents the excessive throbbings that frequently occur in very excitable systems. In the sudden development of scarlet fever, for instance, in some children, a few doses are at first beneficial;—and in the intense, pungent heat of fevers, when they first set in with a full throbbing pulse, a dose of it will frequently obviate the necessity of bleeding. In the use of digitalis, small doses gradually increased must be administered,—strict attention being in the mean time paid to the pulse. Here, in fact, is to be found a rare instance of the pulse being superior to the tongue, as an index to the state of the circulation;—but this, it will be seen, is also an instance of a drug being used for an almost specific action.

Infusion of Calumba;—(dose, ℥iss ad ℥ii: 1½ oz. to 2 oz.)

Take of sliced calumba ʒv (5 drachms), and boiling soft water fl. Oi (1 pint):—steep for two hours, and strain.

Tincture of Calumba;—(dose, ʒss ad ʒii: ½ drachm to 2 drachms.)

Take of sliced calumba ℥iss (1½ oz.), and proof spirit Oi (one pint):—steep for fourteen days, and strain.

This valuable tincture is stomachic, tonic, antiseptic (that is, prevents putrefaction), and, like all the barks or roots having bitter elements, it is a febrifuge, or allayer and preventive of fevers, by subduing some of the primary causes leading thereto; or else it arrests their action by inducing certain secretions, especially among the glands,—thereby keeping up the natural fluids of the body in due proportion for their healthy functions and uses. It is beneficial in nausea and bilious vomitings, especially those attendant on pregnancy; as well as in all cases of dyspepsia or indigestion from impaired power of the stomach, and also in acidities of that organ, when combined with alkalis.

There cannot, moreover, be a better remedy than this tincture for assisting the liver in its actions; and I have no hesitation in saying, that more can be beneficially done for this organ, and consequently for the whole system, by the use of the bitter tinctures and infusions combined with the alkalis and the acids, than by all the mercurials in the world, which only tend to poison the blood by unnaturally altering its constituents and character, and filling it with elements that it never generates itself, even in its most disturbed states. Calumba, then, either taken by itself as a tincture or infusion, or when combined with soda or other alkalis, is a most important and valuable corrective medicine.

Gentian.—The root of the gentian plant is the only part used in medicine. It comes principally from Germany and Switzerland. The medicinal preparations and their uses are as follow:

Extract of Gentian;—(dose, gr. v ad gr. xx: 5 to 20 grains.)

Take of sliced gentian-root ℥ii (2 oz.), and boiling soft water ℥vi (6 oz.):—steep for twenty-four hours; then boil down to one-half; strain while hot; and evaporate by gentle heat to a proper consistence.

It is tonic and stomachic; used in combination with other medicines for jaundice, low fevers, &c.

Tincture of Gentian (Compound);—(dose, ʒss ad ʒii: ½ drachm to 2 drachms.)

> Take of sliced gentian-root ʒv (5 drachms;)—dried orange-peel, ʒiiss (2½ drachms;)—cardamom-seeds ʒi ¼( 1 drachm and 15 grains;)—spirit of wine Oss (½ pint). Pour the spirit on the ingredients, and let them stand for fourteen days;—then strain. This tincture, however, can be equally well made, for ordinary purposes, of gentian-root, ℥ss (½ oz.), steeped for fourteen days in half a pint of spirit, and then strained.

Infusion of Gentian (Compound);—(dose, ℥i ad ℥ii: 1 to 2 ounces.)

> Take of sliced gentian-root and dried orange-peel, each ʒii (2 drachms), fresh lemon-peel, ʒiv (½ oz.) Pour on these a pint of boiling water, either soft or distilled, and cover up for an hour;—then strain. This infusion, however, can be as readily made with sliced gentian-root, ʒii (2 drachms), steeped for four hours in boiling water, and will suit every useful purpose quite as well.

The medicinal properties of the gentian consist in its combined bitter and alkaloid principles; and it is therefore a tonic, stomachic, and antacid. By these actions, it prevents putrescence in the bowels, and consequently the germination of worms;—which, if present, it kills. It is, also, a febrifuge, or endued with the property of curing or alleviating thirst and fever; besides which, by its general tonic action it invigorates the female system, and promotes constitutional regularity. It is a stimulant, likewise, and—as such—beneficial in acidities, flatulencies or flatulent colics, indigestion, and the incipient rheumatic pains produced thereby. It has, therefore, a wide and most beneficial curative range.

It may be usefully combined with alkalis, acids, neutral-salts, chalybeates, and all neutral medicines;—and in cases of fever attended with thirst, and a white, coated, or furred tongue, it is often as beneficial as quinine:—nay, it can often be used, where quinine cannot. I have alluded to the gentian-root in the chapter on fevers, as being a most desirable addition to a soldier's kit, especially useful before entering into action, or for allaying thirst on a march in hot weather or tropical climates.

It is worthy of remark here, that the bitter barks are natives of hot countries, where fevers are found to be very prevalent. Thus, Peru and other parts of South America, Jamaica, and the West Indies, produce the cinchona-barks. The quassia and cusparia-barks are natives of South America; while the Bahama Islands, extending along the coast of Florida and Cuba in the Atlantic Ocean, produce the cascarilla-bark,—which, though not so bitter as other barks, combines a valuable aromatic warmth. In like manner, the calumba-bark is yielded by the forests of Mozambique in South Africa, from whence it has been transplanted to the Mauritius and Bombay. Again, the East Indies and Java produce the nux-vomica, from which the poisonous alkaloid—strychnine—is made;—nor can I help mentioning, that although chemists have extracted its active principle, which is not only highly poisonous, but dangerous in use from its uncertain strength, yet the simple value of the plant for infusions has been overlooked. As respects the barks generally, the hotter the climate, and the more intensely thirst and fevers prevail, the more bitter and alkaloid are the barks or plants found useful as febrifuges; and in proportion as the climate descends in temperature and generates fewer fevers,—so the vegetable kingdom produces fewer and less bitter principles in its plants.

Every country, in fact, has its peculiar medicinal antidotes for disease; and since it will eventually be found that India can be colonised like any other climate in the British possessions, as I have for years past contended, those remedies most suitable for the diseases there engendered will be found upon the spot,—especially when a mode of living shall have been adopted suitable to the climate. One thing, however, must be enjoined in the colonisation of the East Indies, which is, the disuse of alcoholic poisons, and a nearer approach in the habits of the colonists to those of the natives.

As regards our own country, the hop (*humulus lupulus*) has its own peculiar bitter alkaloid;—nor can we see without pleasure, regarding it as an indication of the national good sense, that the wine-drinking propensities of a late generation have been superseded by the adoption, as a favourite beverage, of a bitter, but light description of malt-liquor,—in which there has also arisen a large export trade to India for European use. Although the various species of oak are indigenous to many climates, the bark of those peculiar to Great Britain is the least bitter. The willow-barks, likewise, differ in the intensity of their bitters according to the climate in which they grow,—as also do the various kinds of buckbean, chamomile, and wormwood, all of which are bitter alkaloids.

To return,—the gentian, calumba and the various cinchona-barks, appear to serve all the useful purposes, for which a bitter principle is needed;—for they can be given with the direct alkalis, as well as the direct acids; while the quinine has the bitter principle more concentrated. The tongue will at once, then, indicate their application; for the general state of the system shown thereby will with equal clearness point out, when either can be administered beneficially and with certainty of success.

Infusion of Cinchona, or Lance-leaved Bark;—(dose, ℥i ad ℥iii: 1 to 3 oz.)

> Composed of lance-leaved cinchona ℥i (1 oz.) steeped in a pint of boiling distilled, or soft water for six hours, and then strained.

It is tonic and stomachic,—can be used in the same way as the infusions of gentian and calumba, and combines readily both with alkalis and acids. In excessive uterine actions or floodings, it is a valuable remedy,—when united with the tincture of the muriate of iron:—a little simple syrup added thereto will take off the rough flavour of this inky, but valuable mixture.

As regards the more ordinary bitter infusions,—such as chamomile, quassia, buckbean, wormwood, and all such herbs as are used by herbalists, and prescribed in many parts of the country by cunning women and travelling herb-doctors,—they offer but one favourable feature;—namely, that, as alkaloids, tonics, and stomachics, their use is often followed by the best results. When chemistry had not yet discovered their real acting principles, they formed the staple of cure among the learned physicians of the seventeenth century:—nor can I help remarking, how simple, effective, and beneficial was their herb-treatment by mere infusion,—though at the same time it is impossible to help being amused at the great number, variety, and complicity of plants of different character introduced into a single infusion in former days.

This is abundantly seen in an old work in my possession on the Practice of Medicine, by one "NICHOLAS CULPEPER, Physitian and Astrologer,"—"ABDIAH COLE, Doctor of Physick,"—"WILLIAM ROWLAND, Physitian,"—who translated "The works of that renowned and learned doctor, LAZARUS REVERIUS, sometime physitian to the King of France:"—all which were again collected and commented on by "JOHN FERNELIUS, sometime physitian to the King of France,"—containing cures for all diseases of the body. These men, I may observe, great as they were in their day, quoted Hippocrates and Celsus, as we do now, and were so wonderfully and painfully minute in their Hygiène, that the practice of medicine must have been a heavier tax on the memory than even now; though at present it is quite heavy enough, simply through our lack of philosophy. As an instance of this complicity and minuteness, I will just quote one prescription from the above volume, designed for "four morning draughts," to cure dropsy.

"Take of the roots of eringus, madder, smallage, parsley, and elecampane, of each one ounce;—valerian, asarabacca, dwarf-elder, and flower-de-luce roots, of each half an ounce; the bark of the root of capers and the inward bark of an ash and tamarisk, of each six drachms; the leaves of agrimony, caterach, maidenhair, germander, St. John's-wort, wormwood, and the lesser centaury, or wild mercury, half a handful; the seeds of carrots, parsley, and fennel, of each half an ounce; scraped liquorice and raisins stoned, of each one ounce; of clean senna one ounce and a half; agaric tied in a clout, three drachms; the seed of the dwarf-elder and jalap-roots, of each one drachm and a half; ginger and cloves, of each one drachm; broom, elder, and tamarisk flowers, of each one pugil. Boil them in equal parts of steeled-water and white wine, added towards the end to a pint and a quarter. When it is strained, dissolve therein syrup of succory with rhubarb, four ounces. Make a clear apozeme aromatised with three drachms of cinnamon;—*for four morning-draughts.*"

Here, behold, are thirty-eight ingredients of all sorts in a single formula! Yet, this was no uncommon prescription;—nor does it form an inapt commentary on the practice of those days. Nevertheless, I have seen cases, which, after baffling the best hospital-treatment of the present day, have been cured by the herbalist and the weeds of the "cunning woman." Neither are these matters to be lightly considered, when we see so many of our statesmen, savans, and literati bowing at the shrine of quackery, and seeking their cures from the homœopathist, whose doctrines are far less intelligible even, and less capable of philosophical explanation, than those of the herbalist.

Extract of Henbane;—(dose, gr. v ad gr. xx: 5 to 20 grains.)

Anodyne, sedative, narcotic;—used as a corrective to aperient powders and extracts in the form of pills.

Tincture of Henbane, or Hyoscyamus;—(dose, ♏xv ad ʒi.: 15 minims to 1 drachm.)

Composed of henbane leaves, ℥iiss. (2½ oz.), and proof spirit, Oi (1 pint):—steeped for fourteen days, and then strained.

It is anodyne, sedative, and narcotic;—is used in preference to any of the preparations of opium in all congestive actions, or those states of the secretions in which a general acid condition prevails. Hence it will best be combined with a general alkaline treatment. It will be found useful in hysteria and all nervous complaints,—in nervous paroxysms produced by injuries,—in vigils and want of sleep from mental anxiety, care, and trouble,—in great excitements, bordering on mania;—in fact, in every state where a sedative or narcotic is called for, and the tongue, by its loaded, coated, furred, or otherwise foul, but moist condition, further confirms the above state of the general system.

When given in any of these conditions, the effects of this tincture are most beneficial, because it does not arrest secreting or excreting actions, as opiates do; in consequence of which it is not only more to be depended-on for its beneficial actions, but is free, also, from the injurious effects produced by opium or any of its preparations, when given in any of the above conditions.

*N.B.*—The more caustic alkalis, such as the liquor potassæ or sodæ, are incompatible with its use, as they entirely destroy its properties.

**Tincture of the Muriate of Iron**;—(dose, ♏x ad ʒss: 10 to 30 minims.)

Composed of sesquichloride of iron, ℥vi (6 oz.); muriatic acid, Oi; and spirits of wine, Oiii (3 pints):—steeped for three days, and strained.

It is tonic, antispasmodic, styptic, and astringent. This preparation, sometimes called *steel-wine*, is valuable, as a tonic for pale, weakly children, having a scrofulous tendency, or when growing too fast. In delicate young women, who have excess of constitutional functions, attended with spasms, it is highly beneficial, as well as when given as a course of medicine between the periods of those functions; in which latter case it acts as a general tonic, and considerably lessens those actions. In spasmodic actions of the bladder, likewise,—or when the blood is discharged along with the urine, evidencing a weak state of the kidneys or bladder,—it is very serviceable. Again, in profuse hæmorrhages from the bladder, kidneys, uterus, or bowels,—whether simply diluted with water, or syrup and water, or else combined with the infusion of bark, it acts most effectively. It may be applied externally to stop bleedings from simple or lacerated wounds, by saturating a piece of lint therewith, which can be bound over them, when it acts as a styptic or astringent.

**Colchicum Wine**;—(dose, ʒss ad ʒi: ½ drachm to 1 drachm.)

Composed of dried meadow-saffron root, ℥i (1 oz.):—steeped for fourteen hours in sherry wine, ℥v (5 oz.), and then strained.

It acts as a diuretic, diaphoretic, sedative, and narcotic; also as a febrifuge and antacid, purgative, and stimulant. It is an useful and valuable medicine, but should never be given alone; for I have known several instances of habitual takers of this drug by itself (for the relief of gout) to have died suddenly from heart-disease. When combined, however, with alkaline, anodyne, and aperient medicines, it has no such pernicious effect. Its many different actions, as above enumerated, will show the variety of drugs with which it may be combined.

Thus, in sudden griping pains of the bowels, when a quick relief of them is required, the colchicum acts well with either the neutral salts or the acids, or when combined with Epsom-salts. Again, in the gnawing pains of incipient rheumatism, when the system is in an acid state, as indicated by a white, coated, loaded, or furred tongue,—it acts well with alkalis, united with antimonial wine, sweet spirits of nitre and henbane,—and often with great advantage and success, removing the cause and relieving the pain, yet without acting too violently on the bowels. When acting in this combination, the colchicum has somewhat the effect of a neutral salt formed by its alkalis with the acids of the gastric juice;—for if continued, and the excess of the acids be expelled from the system, its aperient action will subside.

It should be given, combined as above, in all rheumatisms of the upper extremities,—that is, all parts above the crest of the hip-bones,—for which purgative medicines are both unnecessary and injurious; while for rheumatisms below those parts, on the other hand, aperient and purgative medicines are absolutely indispensable. In the latter case, the colchicum wine is best combined with Epsom-salts, carbonate of magnesia, and paregoric. The necessity for this form of aperient is indicated by the white furred or coated tongue; while for a clean red or dry tongue attended with thirst, and where the rheumatism is in the lower parts, the colchicum should be combined with Epsom-salts, dilute sulphuric-acid, and laudanum. These distinctions in its use are extremely valuable, and, moreover, are easily remembered.

Whenever colchicum is given regardless of these rules, though it may do certain appreciable service, it will never effect the amount of good that I have described;—and hence is it, that so many disappointments arise from its use,—not to speak of the unnecessary quantities of medicine administered, so much to the discredit of true science. Where it is judiciously given, however, all its qualities are brought out; and it stimulates all organs and parts to increased functional action, thus exhibiting its diuretic, diaphoretic, and purgative properties, while, at the same time, its antacid qualities effectively remove the morbid causes of the rheumatism or gout. It is sedative and narcotic, likewise, by its action on the nervous system; and it acts as a febrifuge, from the fact of its bitter principle allaying thirst, and, consequently, checking the first indications of fever.

Castor-Oil;—(dose, ʒi ad ℥iss: 1 drachm to 1½ oz.—or one to three table-spoonfuls.)
Its effects are simply laxative and purgative. For infants, beat up a tea-spoonful with a little sugar, or sugar and water, making two or three tea-spoonfuls, and feed them therewith;—for the oil will not nauseate, but be distributed over the stomach. Two or three grains of grey-powder, given in sugar and water enough to mix it, or else in jam,—followed two hours afterwards with the oil,—act better on the bowels than either the powder or oil given separately,—and this, either with infants, or children up to the tenth year;—though, after the third year, the dose of oil may be increased to a dessert-spoonful. Even with adults, a few grains of the grey-powder, followed by a table-spoonful of castor-oil two hours afterwards, will often produce a better effect than two or three times that quantity of oil.

After confinements, castor-oil is useful in doses of one or two table-spoonfuls; but if there be much pain, ten drops of laudanum may be added. Should this oil at all nauseate the stomach, and it must still be given, add ten or twenty drops of the tincture of balsam of tolu, which will cause it to be more easily retained; because with some people the oil has a tendency to gripe. In spasmodic and knotty states of the bowels, the oil, combined with either the laudanum or tolu, will prove beneficial. It is extremely useful, likewise, in what is called painters' colic; which *always* attacks the *transverse portion* of the large intestines lying just under the stomach; and this produces costiveness in persons easily affected by the lead in the paint. In all such cases, when the cause is known, castor-oil will at once present itself as the best possible aperient. Nevertheless, where the system is likely to be debilitated by taking any form of opening medicine, and the use of clysters is required, one or two table-spoonfuls of castor-oil are useful, when mixed with the gruel prepared for that purpose.

Lastly,—castor-oil is an excellent external application, especially in rheumatic affections of the joints;—in which case it should be well rubbed in by the hand, twice or three times in the day. Very frequently persistent pains will arise in joints, especially in the shoulders, after falls or contusions, and will recur, also, after a change of weather. Great benefit will then arise from rubbing in castor-oil. It is, also, an excellent adjunct to the soap and camphor liniments;—and these may be combined with laudanum. Good arises from a liniment thus compounded, in which a piece of lint or flannel, well saturated with it, is applied to the part, and suffered to remain thereon, protected with a piece of gutta-percha tissue. This may be beneficially used over the chest in bronchitis, but is improper in bronchial congestions.

## THE ACIDS.

Muriatic, or Hydrochloric Acid;—(dose, ♏v ad ♏xx: 5 to 20 minims.)

Diluted ditto, composed of one part acid to three of water.

Nitric Acid;—(dose, ♏i ad ♏x: 1 to 10 minims.)

Diluted ditto, one part acid to nine of water;—(dose, ♏x ad ♏xxx: 10 to 30 minims.)

Nitrous Acid;—(dose, ♏v ad ♏x: 5 to 10 minims.)

Sulphuric Acid;—(dose, ♏i ad ♏v: 1 to 5 minims.)

Diluted ditto, one part acid to nine of water;—(dose, ♏x ad ♏xx: 10 to 20 minims.)

*Note.*—In diluting these acids for greater facility in use, sufficient may be made in a mixing-bottle kept for the purpose, and in any quantity that may be required; the only requisite to be attended to being a strict observance of the proportions as given above;—that is, THREE parts of water to the muriatic, and NINE of water to the nitric, and sulphuric, acids.

All these acids, like the gastric acid of the stomach (which is nearly allied in character to the muriatic), act as antiseptics, or preventives of putrefaction, and arrest this action when begun.

They have, also, astringent or contracting, as also styptic or constrictive qualities; and they are diuretic, acting on the kidneys, —and diaphoretic, inducing action on the skin;—whence, also, they are refrigerating, or cooling, and antiphlogistic, or febrifuge. They are tonic, likewise; and in many cases exercise a most beneficial, stimulating, and bracing influence on the system.

Independently, moreover, of these valuable direct actions on certain parts of the body, they give to it that of which it may itself, as a chemical organism, be deficient,—namely, additional acid elements,—from which, according to the acid given, the appropriating functions of the body obtain those gases they are in need of, but which have been destroyed;—thus causing the system to get out of a chemical balance. Thus, the muriatic acid imparts hydrogen and chlorine;—the nitric, oxygen and nitrogen;—the sulphuric, oxygen and sulphur;—while the acids taken in articles of diet, as vinegar, lemons, &c., add hydrogen, carbon, and oxygen. These matters are mentioned solely for the purpose of showing, that, in all the organisms of our system, the four chief gases—oxygen, hydrogen, nitrogen, and carbon—should exist in certain proportions for the purpose of maintaining health; for when any of them fail to contribute their due proportion, some baneful effect is certain to result. In no way is this more clearly shown than in fevers; for then these elements are insufficient in proportion to form a proper condition and acid-predominance in the system.

By far the largest amount of disease results from an excess of acid over its naturally healthful predominance, while in fevers and inflammations there is a deficiency of acid, which the system cannot long survive, unless the balance be restored. The first indication of this want of integrity is *thirst*, which shows a deficiency of the bitter principle; but this may be restored by adding some bitter, combined or not with an alkali. Again, should the disease advance to a certain stage, indicating the deficiency of acid, then acid should be combined with the bitter element given. I may here repeat, however, that persons not generally subject to inordinate thirst are not so liable to fevers as those who are; and that those who habitually indulge in alcoholic liquors are more than usually subject to thirst and fever, and consequently suffer a diminution of the vital acids in their systems.

There cannot be a better guide for the administration of acids than the tongue;—for when it is moist, furred, or coated, they are seldom required; whereas, if it suddenly gets dry, they then become necessary. There is this exception;—that in piles, when the tongue may be moist and coated, but the tip very red, then great benefit results from the use of sulphuric acid. Sulphur, indeed, is well known to be advantageous in these cases;—and why should not the sulphur combined with acid be good? It is so, in fact; and when united with Epsom-salts as an aperient, is a valuable curative medicine for that complaint.

Costive habits of the body often produce, by a sympathetic action of the mucous membranes, a feeble condition of the stomach; and in a case like this, the dilute sulphuric-acid acts like a charm,—not only invigorating the stomach, but acting most beneficially on the large intestines, as well as through them producing a secondary action. Now, other acids will not produce the like double effect; for when the stomach is actually in a state of inflammation, the muriatic acid acts best on that organ, and the nitric and nitrous acids best on the large intestines; whereas, from long practical experience, I have found the sulphuric acid to act in the double capacity above described. Sulphuric-acid, then, is the best acid to use in all ordinary cases of fever, with a dry, brown tongue, or when it is perfectly denuded of all protecting fur,—but is red, naked, and glary, though possibly moist. In these latter conditions especially, a persistent use of the acids is called for; and they are more generally indicative of a deficient secretion of the mucous membranes lining the alimentary canal, than of any feverish state of the system, or any tendency to inflammation of the deeper-seated or serous membranes,—as these latter disorders are usually attended by a foul, dry tongue, and high fever.

It is in such conditions as these, that the various stages of the typhoid fevers supervene, and the tongue—sometimes even the gums as well—become perfectly black, with black sordes on the teeth; so that nothing can be tasted, and even fluids are swallowed with difficulty. The best acid here to be used is the nitrous acid to its fullest extent,—and this for all the purposes described; because it acts as an antiseptic, astringent, styptic, tonic, diuretic, antiphlogistic, and actually contributes nitrogen to a system fast losing it, and therewith all its vital powers. In use, it may be combined with port wine, which is itself more or less astringent, tonic, and stimulating.

In the highest morbid conditions, when reaction takes place, the tongue will peel or throw-off its black fur in a thick solid mass, and the gums and teeth may be wiped from their exfoliated and dead dry skins; nor will anything but a steady persistence in the use of the nitrous acid ensure any certainty of success. Neither must it be considered, that the disease will end here; for, if life continues, the same will occur again. In short, the capillaries along the whole alimentary canal, and the mouths of the absorbent and lacteal vessels, have all been more or less disintegrated or destroyed, and bloody infiltrations have taken place, producing peculiar coffee-ground stools; so that there is a large amount of positive and valuable structure to be renewed.

Similar poisons to the blood-poison of typhus fever will produce similar actions by removing certain elements from the blood,—such as too long a continuance of salt or even boiled meat diet, which produces scurvy, spongy and bleeding gums, giving a tendency to pulmonary diseases, and bringing on conditions approximating to a typhoid state. In scurvy, it is true, lime-juice, lemons, and fresh vegetables are called for; yet they act on the system far more slowly than the nitrous acid. In mild cases, I admit, the former may suffice for every purpose; but when it is a question of life or death, the nitrous acid is far preferable, as having the power to arrest or cure the disease, before the vegetable acids have had power or time to act at all.

This, then, may be considered as established;—that all cases of inflammation and fever, indicated by thirst, and a dry, red, or brown tongue, require the administration of acids, combined with the anodynes, opiates, and bitters. Where no choice can be exercised, any acids will benefit; but where it can, it would be well to recollect the distinctive actions of the muriatic, nitric, and sulphuric acids, and use them accordingly.

In some forms of skin-diseases attended with a red tongue, the acids are the best remedies; for these will readily yield, like scurvy, to their administration; though at present it requires a greater effort of memory to know when to give and when to withhold them; whereas, if the natural acids be carried out too quickly from the system through the skin and the tongue is red,—there seems no necessity for taxing the memory with a multitude of facts, when the simple appearance of one organ will indicate both the state of the system and the means of cure.

The sudden appearance of scarlet-fever exhibits a destructive action of the capillaries externally, and of the absorbents and lacteals internally, accompanied by a skin-eruption,—the burning fire beneath meanwhile consuming all the vital properties of the skin, which itself exfoliates in a few days, and after a time is completely renewed. It is the only fever, in which on its first approach or indication emetics are decidedly injurious. Ordinary fevers, indeed, may be cut short by them; but in the commencement of scarlet-fever the escape of the acids from the system is so sudden and so rapid, that if emetics be given, life may be sacrificed. Nature, in short, has done quite enough in this way, without art making so great an error as to add to the mischief. The acids should here be brought immediately into play, even though the tongue be coated or loaded; for in a few hours it will become bare, clean, and red.

In inflammations of the serous membranes, where calomel and other mercurials have erroneously been considered to be the chief agents or sheet-anchors, bold doses of the acids combined with anodynes cure without injuring other organisms; whereas the mercurials produce general mischief, by not only exciting excessive mucous action, but actually producing a low chronic inflammation of the mucous membranes—thus causing inflammations in many parts to cure one. In ulcerated throats, acid-gargles are most valuable. These conditions, however, so frequently arise from a foul and acid state of the stomach, that alkaline medicines alone will often be found an effective cure. In foul or indolent sores, the dilute acids, outwardly applied, act as antiseptics and de-odorising agents, exciting at the same time highly beneficial curative actions. A weak solution of nitric acid is also an excellent collyrium for weak eyes.

CAMPHOR LINIMENT ;—composed of camphor, one part,—solution of ammonia, three parts,—and spirit of lavender, eight parts. It is useful, also, as a stimulating embrocation in sprains and old bruises, rheumatism, &c.

SOAP LINIMENT ;—composed of soap, one part,—camphor, three parts,—and spirit of rosemary, five parts. It is less powerful than the above, but used for the same purposes.

Liniments should *never* be used in recent sprains, bruises, or contusions :—the instant application of hot fomentations well persevered-in is the best treatment for the first forty-eight hours; or when the hot application is not accessible, the parts should be kept warm. At the end of a few days, however, the liniments may be used, combined with sweet-oil, castor-oil, or such-like unctuous substance, with the addition of laudanum, if required.

GOULARD'S EXTRACT; or, SOLUTION OF THE ACETATE OF LEAD.—This is used in superficial inflammations, in irritations of the skin, and in skin-diseases. It is an excellent adjunct to some ointments, for the purpose of allaying irritation; and when combined in a weak solution with rose-water, it makes a good eye-wash.

MERCURIAL OINTMENT.—Mild mercurial ointments are useful for sluggish ulcers, which they excite to action without producing any mercurial effect on the system. Hence, the strong mercurial ointment should be kept, to be combined with the elder-flower ointment in the proportion of one part of the former to seven of the latter.

RED OINTMENT, or GOLDEN OINTMENT (*Nitric-oxide of Mercury Ointment*).—This is an excellent application in its undiluted state for the edges of the eyelids, when they present a scabby eruption at the base of the eyelashes ;—also, for sore or weak eyes, when sparingly inserted therein at the outer edge with the top of a bodkin, so that it may be dissolved by the action of the globe of the eye. When one part of this ointment is combined with three parts of the zinc ointment, and four of the elder-flower ointment, it forms an excellent application for some forms of skin-disease, where the eruptions break and exude an ichorous discharge—as also to those which scab over. When it is thus used, the parts should be covered with gutta-percha to keep the ointment on them, and thus to retain the heat. By these means, the scab is soon removed; and when this is done, the sore should be *wiped*—not washed, and the ointment again applied. Thus in several forms of scald-head, after the hair has been cut close with scissors—*not shaved*, this ointment may be applied, and a gutta-percha cap worn over it, with a similarly beneficial effect. The scurf and scab should be removed daily, until the head is capable of being cleaned with a small-tooth comb:—it only requires to be well *wiped*—not washed—previous to each application. By these means the worst forms of scald-head may be cured very rapidly.

This ointment may also be judiciously modified by the addition of Goulard's extract, which makes it very creamy. It is a most valuable ointment, too, when applied by itself to sores, which spread on the fingers or toes,—especially after broken chilblains, small festers, &c. An irritative eruption frequently arises behind the knees, in the bend of the leg, and in the inner elbow-joint of children; in which cases this ointment acts very kindly. In a word, it is one of our most useful ointments, and can be variously combined with great advantage to the patient.

Zinc Ointment; composed of oxide of zinc, one part, and lard, six parts. It is astringent, absorbent, and allays irritation—especially when combined with Goulard's extract, or with the elder-flower ointment.

Elder-Flower Ointment;—composed of elder-flower, one part; lard, one part. This ointment is superior to the simple cerate, or spermaceti ointment, for dressing blistered surfaces, as it does not draw the parts so much, and has, moreover, a more cooling effect. Combined with the zinc ointment and Goulard's extract, it is one of the most soothing and grateful applications for piles, and should be used daily by persons suffering from that most annoying complaint.

# CHAPTER XXIV.—Continued.

## THE PHARMACOPŒIA AND ART OF PRESCRIBING.

## Part II.

General view of the various Medicinal-agents—*The Tongue a sure guide for the administration of Medicine*—Invariableness of the Laws of Health and Disease—Alkaline-medicines and diets curative of congestive or ultra-acid actions—Importance of scientific treatment at the outset of maladies, to prevent their reaching the inflammatory stages—Directions for the treatment of simple cases of Congestion: the philosophy of prescribing explained—Illustrative formulæ for congestive states of the system—Nervous-symptoms attendant on acid-disorders, how to be treated—Emetics and their uses in the first stages of fevers—Aperient-medicines, with cautions as to their use—Remarks on Rheumatism,—congestive and inflammatory; with prescriptions useful for each respectively—Bronchial-congestion distinct from Bronchitis: both requiring separate treatment,—the former stimulating expectorants, nitre, and antimonial wine,—the latter acids and anodynes—Prescriptions for each; their choice to be regulated by the indications of the tongue—Strictures on auscultation—Symptoms of inflammatory actions described—Judicious combinations of the bitters with the acids aid in allaying the thirst of fevers—Prescriptions available for arterial, inflammatory, and low typhoid fevers—Formulæ for female maladies—External applications, with remarks—Gutta-percha tissue recommended—Infant-diseases, and their general treatment—Prescriptions for their slighter congestive disorders—Usefulness of emetics for clearing the stomach—Glossological indications for the administration of medicine in infant-congestions—The *acid-remedies*: how, and when to be used—General directions for the use of quinine in prescriptions—Miscellaneous formulæ—Directions for the application of blisters and mustard-plaisters—Concluding strictures on the mercurials and their general abuse.

From the above enumeration of drugs and the description of their uses it will be perceived that they form a small and varied list, yet suitable withal for nearly every purpose required.

Thus there are alkalis and stimulating expectorants,—diuretics and diaphoretics,—stimulants and medicines acting on the absorbents,—emetics, aperients, and anodynes, which last best accord with the alkalis in all congestive actions:—and when these have been sufficiently controlled, the tonics may be used, if required, to restore by their invigorating power. Then follow those which act beneficially in all intermediate cases between the congestive and the inflammatory or febrile states; —and thirdly, when the fevers and inflammations are about to set in, or are actually present, then totally opposite remedies are required,—such as the acids, anodynes, and opiates, which not only arrest the progress of these diseases, but exercise decidedly curative influences.

Taking the tongue, then, as the surest general indicator for the administration of medicine, I shall now endeavour to place simple guides and simple remedies side by side, so that no great error can be committed and no confused combination in the prescribing of remedies take place,—but that what you yourselves select from your medicine-chest shall be distinctive, efficacious, and intended for a specific end, acting on certain grounds, in aid of Nature's own endeavours to restore the lost balance. This is, in fact, the highest aim of medicine; and this implies the prevention of disease by correcting and destroying its first seeds, or the arrest of them when actually present. Lastly,—should either of these two first actions escape both notice and treatment, and the disease manifest itself in its fully developed character, you must learn to check it by your own efforts and simple mode of medication.

You may, perhaps, consider that climate alters the law of health in a human being; but this is a fallacy. Wherever indeed man exists—at the tropics or the poles, or any intermediate place on the globe, or whatever form, colour, habits, or manners he may assume, the law by which he is governed is the same, and adapts itself to all circumstances and changes without any real alteration in character and normal condition. All, in short, that man requires, however opposite the climate to which he may remove, is a proper regulation of his diet and clothing and the increased care incidental to a different atmosphere.

The law, then, which I have laid down remains the same everywhere; and it is simply modified according to circumstances by that wonderful power of adaptation, which Nature ever provides for,—wherever particular habits or individual peculiarities, termed *idiosyncrasies*, occur. So again, in many instances of deformities, whether congenital, or the result of accidents,—from misplaced organs, or from functional or organic diseases,—from the inordinate enlargement of organs, or on the other hand from their diminution to the smallest dimensions compatible with life itself,—or even should some of them, or portions thereof be removed,—yet none of these circumstances seem to affect the life of the individual. Instances also occur of persons having external openings in their stomachs, or being able at will to turn them inside out, and then restore them, securing them with a plug, and also of having openings in their intestines and false urinary apertures,—who yet contrive to sustain an existence more or less prolonged, though incapable of the active or laborious duties of life. All these things happen, and are marvels of Nature to produce through her own unchangeable laws a given balance of power. Nay,—even in the acutest sufferings and greatest disturbances of organs and their functions, as well as in the severest mutilations of the body, she will alone and unaided effect cures.

While civilisation, however, calls for the aid of art, which is one of the highest attainments of man,—yet he, in his finite judgment and with the very best intentions, will so often err, that we may well question, where he does mischief and where he does good; and who can say where is the credit side? It is only, therefore, when this balance of the vital elements is so far lost and incapable of being restored, that death supervenes as a matter of course. In this light alone must we view these things, and not for one moment suppose that Nature has the same absurd laws and doctrines as man, or that she is for ever altering hers, as man is constantly changing his.

Health, then, being our starting-point, we have simply to consider the primary steps of a departure therefrom, in order to arrest them. This may be termed preventive medicine; and its efficiency may be aided by a little abstinence and attention to hygiène; for it must never be forgotten that every meal is medicine as well as diet,—medicine, I say, because it is an alkaline mass immediately acted on by the acids, and often itself neutralising primary elements of disease. This, therefore, must in disease be attended to; for if a wrong diet be given at such times, it is just as likely to do injury as a wrong medicine; and to give one right and the other wrong is to neutralise the benefit of the correct one. Both, therefore, must be of one accord.

It matters not even when diseases are distinctive, such as measles, chicken-pox, small-pox, and other eruptive diseases,—or croup, whooping-cough, catarrhs, influenza, fits, convulsions, apoplexy, congestive rheumatism, or any other specific malady short of actual fever or inflammation;—they are all of them only the effects of some morbid self-generated poison from excess of acid brought into positive existence by some exciting cause or action, and located in some particular part. It will readily be seen, then, as soon as a full knowledge has been obtained of the beneficial uses of a few well-combined corrective remedies designed to restore the lost balance, how soon the system thus aided recovers itself; because Nature is assisted in her designs by the co-operation of art; whereas, if art, from want of knowledge or design, or by following some usual routine, or acting on some fixed prejudice, prescribes what is opposed to her, then art and disease act as two to one against Nature:—and yet, even here, I have often seen Nature triumph over both.

It is, indeed, this want of distinctive policy, that frequently leads to long illnesses, and throws what ought to be scientific practice into disrepute,—and not undeservedly. The unscientific use of mercurials, purges, and starving serves only to knock the patient down and weaken his powers; and the well-known and too often practised doctrine of clearing the system well out as it is termed, and then to see what is the matter, must on reflection shock the understanding of any sensible person, equally with the patient's body. How can we wonder, then, at homœopathists making head, who, coming with their *nothings* and simply leaving the matter in Nature's hands, gain credit, because there is little to do, and they do it; whereas, when a bolder treatment is required, and danger threatens, they, on the other hand prove themselves to be utterly powerless,—and, I may say, criminally incapable.

The tongue, as I have frequently before remarked, will indicate excess of acid in the system, by becoming whiter and more furred than usual, with many attendant symptoms of uneasiness; and every increase of this furred appearance, and aggravation of general discomfort, so long as the tongue continues moist, may be considered to mark more and more an increased acid and congested condition. In all these cases, whatever the various symptoms or pains may be, or whatever organ be functionally disturbed, the system requires the alkaline corrective medicines. Thus the art of prescribing becomes both simple and scientific.

The following example will show unity, as well as effectiveness of design, commencing from indigestion, flatulence, or acidity of the stomach. All these most simple cases will yield to the following modes of treatment.

Carbonate of soda gr. xv (15 grains).
Water . . . ℥iss (1½ ounce, or three table-spoonfuls).

Should the system require a little stimulus, then add—

Sal-volatile ♏x (10 minims).

If the skin and kidneys need a slight action as well, add—

Sweet spirits of nitre, ♏x (10 minims).

In the presence of uneasy pain in the bowels, then add—

Tincture of henbane ♏xx (20 minims).

Should the nerves be at all excited, then add—

Spirits of camphor ♏v (5 minims).

If rheumatic pains are flying about, add—

Colchicum-wine ♏xv (20 minims).

In the absence of regular appetite, substitute for the water

Infusion of gentian or calumba ℥iss (1½ ounce).

And if a slight thirst be present, add—

Tincture of gentian or calumba ♏xx (20 minims).

Lastly, in case of the tongue being much furred, add—

Antimonial wine ♏xx (20 minims).

Thus it will be seen, how readily a few agents, if properly combined, all having the same—namely, an alkaline—base, though different actions, can be made to act together in arresting and neutralising the effects of any indigestible matter taken into the stomach, causing dyspepsia, nausea, sleepiness, headache,—at the back part, stitches in the side, flatulence, spasms and colicky pains,—acid eructations, giddiness, hiccoughs, and fulness of the bowels,—often producing costiveness in the most regular habits. This, instead of being treated by aperients, to the great injury of the system,—for costiveness is here but an effect,—may be remedied by taking a simple alkali, that removes the free acids from the stomach and upper parts of the alimentary canal,—forming therewith a neutral salt, which acts as an aperient without doing violence to the system. If aperients, on the contrary, are first taken in such conditions,—all the causes are passed over and ignored, and vital as well as vitalising elements are carried out from the large intestines,—thus tending to weaken the body, instead of simply neutralising the morbid elements in the digestive organs,—a proceeding which would at once set everything to rights. All the above remedies, it will be perceived, may be combined in one mixture; though some, nevertheless, may be withheld according to circumstances, and others substituted;—nay, all may be taken separately (except the colchicum, which I never advise) in the doses specified against them, always diluting them with water.

Now the system may be upset by some new or unusual diet, —by colds, change of atmosphere, or irregularities of living, either from excess or deficiency of nourishment,—from slight falls, sudden frights, or excess of fatigue,—from too sedentary a habit, or from want of usual exercise,—also from keeping late hours, living in close rooms or ill-ventilated apartments,—or from excitement, sudden depression caused by any painful intelligence; anxiety and trouble about business;—in short, from a thousand human causes, all of which will produce temporary functional disturbances, all of an acid character. Strange, however, to say,—all these ailments have, by a perversity of human judgment, been set down to BILIOUSNESS, or some affection of the LIVER, when that organ has had nothing whatever to do with them, except by common partnership.

This popular and almost universal delusion has led to the free use,—or, more properly, abuse,—of two of the most hurtful classes of medicaments that can possibly be employed; —I mean the mercurials and aperients, the former acting on the glandular system and the poor liver, the latter on the large intestines; and thus the two parts most affected are passed over, —namely, the stomach, and its residuary acting organ, the duodenum, with both the substances therein concocted, called the CHYME and the CHYLE. Now, would the public only consent to consider themselves *chymous* and *chylous*, instead of *bilious* and *nervous*, thousands on thousands would every year be saved from much human suffering, because simple measures would then be adopted; whereas the remedies now too commonly employed instil poison into the system, and produce greater evils than any they remove.

A few prescriptions based on these views, and given by way of illustration, will be found useful, as ordinary medicines.

1. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒi | 1 drm. |
| Sal-volatile | ʒi | ,, |
| Water | ℥vi | 6 oz. |

Mix:—Take a fourth part twice or thrice a day after meals.

2. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒiss | 1½ drm. |
| Sal-volatile | ʒi | 1 ,, |
| Sweet sp. of nitre | ʒi | ,, ,, |
| Water | ℥vi | 6 oz. |

Mix:—Take two table-spoonfuls every three hours.

3. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii | 2 drms. |
| Sal-volatile | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | ,, |
| Tincture of henbane | ʒii | 2 drms. |
| Water | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls every four hours.

4. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒi | 1 drm. |
| Sal-volatile | ʒi | ,, |
| Sweet sp. of nitre | ʒi | ,, |
| Tincture of henbane | ʒii | 2 drms. |
| Spirits of camphor | ʒss | ½ drm. |
| Water | ℥vss | 5½ oz. |

Mix:—Take three table-spoonfuls three times a day.

5. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii | 2 drms. |
| Sal-volatile | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | ,, |
| Tincture of henbane | ʒiii | 3 drms. |
| Spirits of camphor | ʒss | ½ drm. |
| Colchicum wine | ʒiii | 3 drms. |
| Water | ℥v | 5 oz. |

Mix:—Take a fourth part three times a day.

6. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii | 2 drms. |
| Spirits of sulphuric æther . . . | ʒii | „ |
| Tincture of henbane . . . . | ʒii | „ |
| Spirits of camphor | ʒss | ½ drm. |
| Water . . . . | ℥v | 5 oz. |

Mix:—Take one table-spoonful every two hours.

7. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒiss | 1½ drm. |
| Sal-volatile . . | ʒi | 1 drm. |
| Infusion of gentian . . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part every day at eleven and four o'clock.

8. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒiss | 1½ drm. |
| Spirits of sweet nitre . . . | ʒi | 1 drm. |
| Sal-volatile . . | ʒi | „ |
| Infusion of calumba . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part one hour after the three principal meals.

9. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Tincture of gentian . . . . | ʒii | 2 drms. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take three table-spoonfuls every four hours.

10. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii | 2 drms. |
| Sweet sp. of nitre | ʒi | 1 drm. |
| Sal-volatile . . | ʒi | „ |
| Tincture of calumba . . . | ʒii | 2 drms. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls after every meal.

11. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Tincture of digitalis . . . . | ʒi | „ |
| Tincture of henbane . . . . | ʒii | 2 drms. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take a table-spoonful every two hours.

12. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii | 2 drms. |
| Sweet sp. of nitre | ʒi | 1 drm. |
| Sal-volatile . . | ʒi | „ |
| Tincture of calumba . . . | ʒiii | 3 drms. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls three times a day.

13. Take—

| | | |
|---|---|---|
| Sal-volatile . . | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Tincture of henbane . . . | ʒii | 2 drms. |
| Spirits of camphor | ʒss | ½ drm. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls occasionally.

14. Take—

| | | |
|---|---|---|
| Sal volatile . . | ʒi | 1 drm. |
| Tincture of henbane . . . | ʒi | „ |
| Tincture of gentian . . . . | ʒii | 2 drms. |
| Spirits of camphor | ʒss | ½ drm. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take three table-spoonfuls twice a day.

15. Take—

| | | |
|---|---|---|
| Sweet sp. of nitre | ʒi | 1 drm. |
| Sal volatile | ʒi | „ |
| Tincture of calumba | ʒiii | 3 drms. |
| Spirits of camphor | ʒss | ½ drm. |
| Water | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls three times a day.

16. Take—

| | | |
|---|---|---|
| Sal volatile | ʒi | 1 drm. |
| Tincture of gentian | ʒi | „ |
| Tincture of calumba | ʒii | 2 drms. |
| Water | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every two hours.

Thus in all cases of simple departure from a normal and healthy standard, where there is a feeling of depression from want of nervous power, whatever the cause, so long as the tongue is white, furred, and moist, the prescriptions from 1 to 12 will be found appropriate and curative. The addition of simple syrup, or syrup of saffron, ʒii (2 drachms), may at any time be made to render them more palatable. In cases, however, where simple nervous debility may be unattended with much acidity in the system, any of the prescriptions, from 13 to 16, will prove useful combinations, particularly as each ingredient therein may be used separately for this purpose, or they may be combined according to the beneficial action they are found to possess on each individual system, because they all have alkaloid properties.

Nervous disorders and symptoms accompany rather the acid conditions of the system than those which partake of the inflammatory or febrile state, which are alkaline. Again, should all the first indications of a departure from health be neglected and the tongue exhibit a loaded and furred condition, then bolder doses of carbonate of soda may be given, combined with the antimonial or ipecacuanha wines, as in the following:

17. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒii v ʒiii | 2 [or 3 drms. |
| Antimonial wine | ʒii | 2 „ |
| Sweet sp. of nitre | ʒi | 1 drm. |
| Sal-volatile | ʒi | „ |
| Water | ℥vss | 5½ oz. |

Mix:—Take a fourth part every four hours, or an hour after every meal.

18. Take—

| | | |
|---|---|---|
| Carbonate of soda | ʒiii | 3 drms. |
| Ipecacuanha wine | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Sal volatile | ʒi | „ |
| Water | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls three times a day.

Where the powers are strong and a full habit of body prevails, and when the fur of the tongue is dark or yellow, indicating a very foul state of the stomach and actual presence of bile therein, *where bile should never be*, but when present always nauseates,—then Nature will often relieve herself by spontaneous vomiting. Now, this almost always happens, when the stomach is empty; because each meal, as an akaline mass, takes some of the offensive secretions away; and, consequently, when sickness supervenes, it is at a time when the self-generated and accumulated poisons are alone present. The action of vomiting is, therefore, attended with great distress and often fruitless efforts to expel these poisons,—and after a time it is deferred and kept in abeyance by another meal, which, however insignificant, may neutralize portions of those poisons and carry them out of the stomach, only to be taken up by the absorbent-vessels into the blood.

These states are always to be feared and carefully guarded against; because they precede the actions which produce the fevers and inflammations, whether general or local,—and which of the two no man can say:—for, if general, the fever may be congestive or venous,—inflammatory or arterial,—capillary or terminating in eruptive fever; and if on the other hand it be local, this depends on so many circumstances—that who can say which organ will first become the seat of inflammation? Now, if Nature ever tries to eject as speedily as possible all actually foreign poisons taken into the stomach, she equally endeavours to do the same with those that are self-generated; and if she is unable to accomplish it herself, we must aid her with an emetic, —still following the wise laws, by first giving a full meal, so that the stomach may have something to act upon, administering half-an-hour or an hour afterwards, according to circumstances, one or other of the following formulæ:

19. Take—

| | | |
|---|---|---|
| Antimonial wine . . | ʒiv ad vi | 4 to 6 drms. |
| Water . . . . . . . | ℥i ad iss | 1 to 1½ oz. |

Mix,—to make an emetic.

20. Take—

| | | |
|---|---|---|
| Ipecacuanha powder . | gr. xv ad xx | 15 to 20 gr. |
| Antimonial wine . . | ʒiv | 4 drms. |
| Water . . . . . . | ℥i ad iss | 1 to 1½ oz. |

Mix,—to make an emetic.

After the first vomit, the patient should drink warm water; and when these directions are attended to, vomiting will seldom occur more than three times,—the first being to expel the more solid contents of the stomach and whatever morbid matter may be combined therewith,—the second to get rid of the less solid and more acrid matters or poisons,—and the third, a sympathetic nervous vomit producing great action on the liver, the second stomach or duodenum, and the lower bowels; not acting, however, on the large intestines as a purge, but compelling the liver freely to disgorge its bile,—which, as there is nothing in the second stomach for it to act on, passes rapidly through the small intestines and then through the large,—producing hot, fluid motions.

Now, these are precisely the actions which do the great good in the first stages of fever; because fever is about to be set up from a self-generated poison in the alimentary canal, which is indicated by its being removed therefrom into the blood by the absorbent vessels which have no power of discrimination. The function of the absorbents being constantly to take up all that is being supplied to the body for its nourishment and support,—if there be poisons present, they will of course, take up and carry those into the system as well. Hence, if judgment be used, and an emetic given to remove those which are unabsorbed, it is correct philosophy to say that emetics tend to cut fevers short; and you will see how closely these artificial actions resemble those which I proved to exist, when comparing the poisons actually taken in bulk with those that are self-generated. All fevers, therefore, may thus be checked, if emetics are used in time, except scarlet-fever,—and that for reasons previously explained in the chapter on Poisons.

Lastly,—when emetics have been taken for a presumed congestive or acid state of the system, it will be necessary to follow them up with a mixture—such as No. 3 or 4—containing an alkali and sedative. Supposing an emetic not to have been used, but the simple acid congestion to be met by the alkaline medicines, which have slightly acted on the bowels,—just as seidlitz and other effervescent mixtures do,—nevertheless an aperient may be required, more especially if there be any frontal headache. In that case, the following formulæ of pills will be found useful:

21. Take—

| | | |
|---|---|---|
| Extract of colocynth . . | ℈ii | 2 scr. |
| Extract of rhubarb . . | ℈ss | 10 gr. |
| Powdered scammony . . | ℈ss | ,, |

To be made into a mass and divided into twelve pills;—of which two or three may be taken at bed-time, according as the bowels are usually influenced by aperient medicine.

22. Take—

| | | |
|---|---|---|
| Extract of rhubarb . . | ℈i | 1 scr. |
| Extract of colocynth . . | ℈i | ,, |
| Extract of henbane . . | ℈ss | 10 gr. |

To be made into a mass and divided into twelve pills;—two of which should be taken occasionally at bed-time.

The first form of pill is suitable for at least eighty per cent. of the adult community. For persons, likewise, who usually have clean tongues, a simple pill may prove occasionally useful, even without a previous dose of the alkaline mixture; and if so, the above (No. 21) recommends itself for that purpose. These pills act without distressing or griping the bowels, or interfering with the usual routine of persons constitutionally accustomed to regular action; while the second prescription will be found more especially serviceable to those, in whom any form of aperient acts quickly, and always—owing to the condition of their bowels—with more or less griping action.

Persons, however, who suffer from hæmorrhoids or piles, should take neither of the above forms of aperient, nor even castor-oil. For such as these, the following forms of mixture will be found both agreeable and efficacious:

23. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥ii | 2 oz. |
| Boiling-water . | ℥viii | 8 „ |

Mix;—and when the solution is cold, add—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . | ʒi | 1 drm. |
| Paregoric elixir | ℈iii | 3 scr. |
| Syrup of red-poppies . . | ℈iv | 4 „ |

Mix:—Take a wine-glassful night and morning, till a gentle action ensues;—and then discontinue.

24. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥ii | 2 oz. |
| Boiling-water . . | ℥v | 5 „ |

Dissolve;—and when cold, add—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Paregoric elixir . | ʒii | 2 „ |
| Tincture of gentian . . . . | ʒii | 2 „ |
| Syrup of red-poppies . . . . | ʒiii | 3 „ |

Mix:—Take two table-spoonfuls three times a day.

The large intestines, it should be remembered, are the laboratory for the principal vital elements of the body; and hence is it, that persons, who exhaust their systems by constantly taking aperient medicines, lose power and become emaciated, weak, and dispirited. The strongest man even will be brought down by a little griping of the bowels and a few active purges; —and a little English cholera will at once prostrate the sufferer, though he be a giant. How much more, then, will the Asiatic cholera or dysentery do so,—or even violent spasms at the pit of the stomach following a relaxed state!

Nevertheless, however hurtful and mischievous the practice, it is very common with people to be constantly flying on all occasions to strong aperient and drastic purgatives, that remove the elements of life in a most barbarous and unnecessary manner—yet without touching any of the real causes of disease; which, after all, are not in the large intestines but the stomach. By the sale, indeed, of such like aperients, which at any time should be taken but charily, the nostrum-mongers have made, and are making large fortunes, to the great injury of those who submit to be their victims.

The want, however, of regular action in the large intestines is frequently the result of incomplete digestion;—in which case it will be most prudent always to attend to the stomach, first by neutralising any acidity therein, and then—if this judicious proceeding does not afford sufficient relief—to take some mild form of aperient. The pill No. 21 is a very simple and sufficient one;—or if that be inexpedient, the common Epsom-salts, combined in the following mixtures, will prove useful and efficacious:

25. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥ss | ½ oz. |
| Sal-volatile . . | ʒi | 1 drm. |
| Water . . . . . | ℥ii | 2 oz. |

Mix:—This draught to be taken at bed-time, or the first thing in the morning.

26. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥ii | 2 oz. |
| Sal-volatile . . | ʒii | 2 drms. |
| Water . . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part night and morning.

27. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥iss | 1½ oz. |
| Sal-volatile . . | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Water . . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part three times a day.

28. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥i | 1 oz. |
| Powdered rhubarb | ʒii | 2 drms. |
| Sal-volatile . . . | ʒi | 1 drm. |
| Tincture of calumba . . . | ʒii | 2 „ |
| Water . . . . . | ℥vi | 6 oz. |

Mix:—Take two table-spoonfuls every four hours.

29. Take—

| | | |
|---|---|---|
| Epsom-salts . . | ℥iss | 1½ oz. |
| Carbonate of magnesia . . . | ʒii | 2 drms. |
| Sal-volatile . . | ʒi | 1 „ |
| Antimonial wine . | ʒii | 2 „ |
| Water . . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part every night at bed-time.

30. Take—

| | | |
|---|---|---|
| Epsom-salts . . . | ℥i | 1 oz. |
| Carbonate of magnesia . . . . | ℥ss | ½ „ |
| Sal-volatile . . . | ʒi | 1 drm. |
| Tincture of gentian | ʒii | 2 „ |
| Water . . . . . | ℥vi | 6 oz. |

Mix:—Take a fourth part occasionally.

All these forms of aperient medicine are intended for simple ailments, and not to be persisted-in unnecessarily,—but only taken when there is pain in the fore-part of the head,—that is, frontal headache. Headaches, too, be it remembered, are very valuable diagnostic marks, and point out the distinct parts of the body affected. These headaches, then, should, when present, be considered in connexion with the appearances of the tongue.

The following formulæ will likewise be found specifically useful:

31. Take—

| | | |
|---|---|---|
| Epsom-salts | ℥ii | 2 oz. |
| Carbonate of magnesia | ʒiv | ½ „ |
| Sal-volatile | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | „ |
| Paregoric-elixir | ʒii | 2 „ |
| Colchicum-wine | ʒiii | 3 „ |
| Water | ℥vi | 6 oz. |

Mix:—Take a fourth part three times a day.

32. Take—

| | | |
|---|---|---|
| Epsom-salts | ℥ii | 2 oz. |
| Sal-volatile | ʒi | 1 drm. |
| Tincture of calumba | ʒiii | 3 „ |
| Colchicum-wine | ʒiii | „ |
| Paregoric-elixir | ʒii | 2 „ |
| Water | ℥vi | 6 oz. |

Mix: — Take two table-spoonfuls every three or four hours.

33. Take—

| | | |
|---|---|---|
| Epsom-salts | ℥iss | 1½ oz. |
| Dilute sulphuric acid | ʒi | 1 drm. |
| Paregoric-elixir | ʒiii | 3 „ |
| Colchicum-wine | ʒiii | „ |
| Syrup of red-poppies | ʒiii | „ |
| Water | ℥vi | 6 oz. |

Mix:—Take a fourth part three times a day.

34. Take—

| | | |
|---|---|---|
| Epsom-salts | ℥iss | 1½ oz. |
| Dilute sulphuric acid | ʒi | 1 drm. |
| Laudanum | ʒi | „ |
| Colchicum-wine | ʒiii | 3 „ |
| Syrup of red-poppies | ʒiii | „ |
| Water | ℥vi | 6 oz. |

Mix:—Take two table-spoonfuls every three or four hours.

In all cases where the salts are used, they should be previously dissolved in boiling water, and allowed to cool, before the other ingredients are added.

Among the above, Nos. 31 and 32 will be found most effective in rheumatism of the lower extremities, accompanied by a *white tongue,*—Nos. 33 and 34 in rheumatism of the lower extremities, also, but accompanied by a *red tongue.* Any prescription from No. 1 to 12 will be found beneficial for rheumatism of the upper extremities; because they neutralise the acidities causing it. The formula No. 29, containing colchicum-wine, acts slightly as an aperient, as well as an antacid, and should be used only for those rheumatisms, in which the tongue is *white, furred, and moist;*—in which case the Dover's-powder may be taken in gruel at bed-time, when the pain is great, and it is desirable to promote perspiration. This medicine, thus given, causes large quantities of morbid elements to escape from the centres of the body to the surfaces through the skin. When rheumatisms, on the other hand, are attended with a clean red tongue, half a grain or a grain of opium in the form of pill, independently of the paregoric in the mixture, will be found beneficial.

Thus, the rheumatisms have been seen to occur in two distinctive conditions of the body:—the acid or congestive, and the alkaline or inflammatory. The acid state mostly accompanies rheumatism of the upper extremities, and calls for the use of the alkalis; while the alkaline state, chiefly a concomitant of that in the lower extremities, requires an acid treatment. The medicines in both cases, however, must be accompanied by anodynes;—henbane with the alkalis,—and paregoric, laudanum, or opium with the acids. The acute or inflammatory rheumatism, again, is *aggravated*, the chronic or congestive *relieved*, by heat. For the latter, therefore, the natural bath or a persistent and profuse perspiration tends greatly to their relief and cure;—while in the former or alkaline and acute rheumatism, only a gentle or moderate heat should prevail,—or else fever will set in. Nevertheless, *all forms of rheumatism require aperients;*—yet it must not be forgotten, that pains simulating rheumatism are attendant on several forms of organic disease, and more especially heart-disease and inflammation of the lungs,—a circumstance which may lead to a mode of treatment quite irrespective of the real cause of the mischief. Chronic inflammation of other organs, likewise, may produce erratic pains in various parts of the body and limbs; but these are easily distinguishable from true rheumatism.

Recurring once more to the subject of aperients,—I may finally observe, that all persons having irritable bowels which are easily excited to pain, should—in case of any aperient being necessary—take No. 22 form of pill, even though it may gripe them; as it will in the end be found highly serviceable.

We have thus far considered the forms of alkaline medicines for direct acid or congestive actions of the system, including also that stage of them, where thirst indicates a slight feverish tendency requiring the addition of the bitters, such as gentian, &c., to correct and arrest it, as well also as to give the system a certain tonicity, that may prevent the regular setting-in of fevers. Then again, we have medicines of a simple alkaloid character—such as Nos. 13—16—for nervous disorders, nervous depression,

&c.; and lastly the emetics, which, when followed by simple forms of aperient medicines, prove very beneficial in removing morbific self-generated poisons during congestive states of the system.

It next becomes necessary to take another view of those actions and conditions of the body, that produce congestive states of the lungs attended by coughs. Now, as respects coughs and the names given to them,—persons are very commonly said to have *bronchitis*, when they have nothing of the kind. In all these cases, the tongue is an important corrector and counsellor. If in the presence of a cough, that organ be white and furred—especially at the root and down the centre,—and there be much expectoration, all this denotes a congestive state of the windpipe and bronchial-tubes, which are loaded with mucus, the irritation from which causes the cough. If free expectoration follows this, the air-passages are relieved:—if not, that action should be encouraged by giving stimulating expectorants, and such medicines as will loosen and dissolve the phlegm so collected,—causing it, therefore, to be all the more easily dislodged and got rid of, when the cough comes on. Here the causes of the cough are readily removed, and that too without anything like an approach to inflammation,—inasmuch as the malady has not reached the inflammatory state, truly called bronchitis, but is merely *bronchial congestion.* Mistakes in treatment on this head are far from infrequent;—and in my own consulting practice I could point out numerous cases, where this error has led to consumption. For the bronchial congestions, the following prescriptions will be found beneficial:

35. Take—

| | | |
|---|---|---|
| Compound tragacanth powder . | ʒii | 2 drms. |
| Nitrate of potass (nitre) . . . | ℈i | 1 scr. |
| Sweet sp. of nitre | ʒi | 1 drm. |
| Antimonial-wine . | ʒi | ” |
| Tincture of balsam of tolu . . . | ʒss | ½ ” |
| Simple syrup . . | ʒii | 2 drms. |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take a dessert-spoonful frequently, or when the cough is troublesome.

36. Take—

| | | |
|---|---|---|
| Compound tragacanth powder . | ʒiss | 1½ drm. |
| Sweet sp. of nitre | ʒi | 1 ” |
| Antimonial-wine | ʒi | ” ” |
| Tincture of balsam of tolu . | ʒss | ½ ” |
| Simple syrup . | ʒiii | 3 ” |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every one or two hours.

37. Take—

| | | |
|---|---|---|
| Compound tragacanth powder . | ʒi | 1 drm. |
| Nitrate of potass . | ℈i | 1 scr. |
| Sweet sp. of nitre | ʒi | 1 drm. |
| Paregoric-elixir . | ʒii | 2 ,, |
| Tincture of balsam of tolu . . . | ʒss | ½ ,, |
| Simple syrup . . | ʒii | 2 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every two or three hours.

38. Take—

| | | |
|---|---|---|
| Nitrate of potass . | ʒi | 1 drm. |
| Sweet sp. of nitre | ʒi | ,, ,, |
| Antimonial-wine . | ʒi | ,, ,, |
| Tincture of balsam of tolu . . . | ʒi | ,, ,, |
| Simple syrup . . | ʒii | 2 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix: — Take one table-spoonful every one or two hours.

In making these mixtures, the tragacanth should be rubbed down in a mortar with the syrup, to form a mucilage, and then the water added by degrees, in order to prevent lumpiness. The other ingredients must not be added, till after this has been effected; for the compound tragacanth contains starch,—and if water were added in the first instance, there would be a difficulty in making a nice emulsive preparation.

Congestive actions of the lungs are seldom unaccompanied by some similar disturbance of the stomach; and for these, one or other of the mixtures, from No. 1 to 12, may be taken once or twice a day, at the same time that mixtures Nos. 35 and 36 are taken for the cough;—because carbonate of soda will disengage much carbonic acid from the lungs as well as the stomach. When the tongue becomes less furred in the centre, though still furred at each side, and there is an irritative cough, —the formula No. 37 (which contains a slight anodyne), may prove advantageous. For the asthmatic coughs of old people, who have always more or less irregularity of action in the kidneys, with certain dropsical tendencies incidental to general functional debility, No. 38 will be found very serviceable and to answer several useful ends. The nitrate of potass (or nitre) in the mixture may be increased in quantity, as the case requires.

As congestive states gradually verge towards the feverish,— which will be indicated by a sense of thirst, and may be allayed immediately by the addition of a bitter element,—so congestive coughs progress towards inflammatory ones, and must then be allayed by the bitter anodynes. In some classes, especially the female working-class,—female servants in particular,—pleurisy very quickly supervenes on the congestive conditions; while in the higher classes inflammation takes place in the mucous membrane of the lower part of the windpipe or bronchial-tubes; and this may then be correctly called *bronchitis.* This disease, now, is comparatively as rare to the air-passages, as other inflammations are to other organs of the body,—a fact not sufficiently recognised; and hence coughs have been frequently and most improperly termed " bronchitis,"—when, in fact, they do not proceed from inflammation at all. When bronchitis is actually present, a totally different treatment is imperative,—one diametrically opposite to that for the congestive actions which require alkalis;—because the inflammatory conditions are alkaline themselves, and call for the use of acids. Thus these two diseases—so often confounded,—yet really as opposite as the poles, as regards both their symptoms and treatment,—admit of proper and ready discrimination;—whereas, if their treatment be reversed,—that is, alkalis given where acids are called for, and *vice versâ,* continued disease ensues, and life not unfrequently falls a sacrifice.

Bronchitis, however, though rare as compared with bronchial congestions—is yet the most common inflammation of the mucous membranes in this very variable climate. This is indicated by the tongue presenting a distinct red appearance down its centre. In some persons, a simply cleaner state in this part may be noticed, gradually increasing to a perfectly crimson colour, as compared with the rest of the organ. When there is inflammation of the mucous membranes of the stomach combined with bronchitis, portions of the tongue on each side of the central division appear red as well; and should the bronchial inflammation be the greater of the two, the crimson appearance will deepen to a purple hue. Thus there are gradations of appearances, very simple to the eye of those accustomed to notice them:—and it is of the last importance to be able to discover by such ready and easy means the lurking danger,—the remedy for which is as simple as it is efficacious.

In all these cases where the acids and anodynes are called for, the following formulæ will be found beneficial.

39. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Paregoric-elixir . | ʒii | 2 ,, |
| Syrup of red-poppies . . . . | ʒii | 2 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take a dessert-spoonful frequently, or whenever the cough is troublesome.

40. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Ipecacuanha-wine | ʒss | ½ ,, |
| Paregoric-elixir . | ʒii | 2 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every hour.

41. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Laudanum . . . | ʒi | 1 ,, |
| Syrup of red-poppies . . . . | ʒii | 2 ,, |
| Water . . . . | ʒvss | 5½ oz. |

Mix:—Take a dessert-spoonful every hour.

42. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Paregoric-elixir . | ʒiii | 3 ,, |
| Tincture of digitalis . . . . | ʒi | 1 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every one or two hours.

Thus, in ordinary cases, Nos. 39 and 40 are suitable to check the inflammation either of bronchitis or pleurisy. The prescription No. 41 may be used when the tongue and a hard dry cough indicate the further advance of inflammation;—and when the heart's action is too quick, as well as much disturbed, No. 42 will relieve it. In this country, where climatorial changes are so frequent and so great—even during the twenty-four hours,—and where lung-diseases are not only so prevalent, but so painfully fatal, I have a thousand times seen reason to regret the false steps pursued in their treatment, even by the best-reputed authorities,—all for want of duly apprehending through the eye what is actually going-on during the application of the remedy.

Auscultation or percussion, or the sounding of the chest by the stethoscope, or the ear applied directly to the parts, has, no doubt, an air of scientific parade and importance. Every one must know, that a certain number of queer noises and sounds will be produced by air, more or less obstructed, in hollow tubes: but these, though I do not for a moment question their reality or varieties, are, nevertheless, often doubtful and deceptive; neither can the eye in many cases detect after death what the ear had professed to define so well during life. This practice, moreover, involves so many deductions therefrom,—that they become tediously complicated, and often confuse both the cause and the treatment. Under all these circumstances, therefore, it seems far safer and more judicious to submit to the guidance of the tongue, which will be found to give distinct information on the nature and cure of disease, both to the eye and the mind.

Inflammations generally, wherever situated or occurring, will always be indicated by the tongue. In all inflammations of the mucous membranes of any part of the alimentary canal or those lining the air-passages, the tongue will usually be found more or less denuded of its fur, and red. Inflammations of serous membranes, on the other hand, or those external to the bowels or other organs, or in the body of the lungs themselves, will generally be indicated by a foul tongue—at first dry and attended with thirst,—then hard and brown. In the former, the acids must be persisted in, combined with anodynes, opiates, and demulcents,—in the latter, the acids, combined with bitters and opiates;—and if these remedies produce a moist state of the tongue, it shows that the disease has been brought under control. When this happens, the alkaline-medicines may once more be resumed; though, if, as is frequently the case, the tongue becomes dry and brown, recourse must again be had to the acids. The eye here directs the management of both in a moment; and by the ready changes thus dictated, the disease and its causes are as simply regulated as a piece of machinery.

Any of the forms of acid-mixture without the aperients will here be alone necessary;—while, on the other hand, any of the alkalis will, in their turn, serve the purpose. There are many cases, moreover, which require great promptitude in changing from the direct alkaline to the direct acid treatment, and *vice versâ*. Thus, in injuries to the lower extremities especially—whether from accidents or operations, or from simple natural causes—such as blisters from walking, inflamed corns or bunions, or broken chilblains, or frostbites—distress is felt mostly on the forehead, or reflecting and appreciating portions of the brain; and hence comes headache in this region. The tip of the tongue becomes very red, and, if furred, presents an altered appearance up the whole centre, where it becomes drier than at other parts. Here, then, is indicated an incipient inflammation of the inner or mucous coats of the large intestines; which inflammation, too, is by sympathy communicated to the outer or serous coats, and from them again to the external coverings of the vessels of the lungs.

Nothing can be more certain or true than the combined symptoms and appearances that are here described; and yet, by the ordinary means of judging, nothing seems to be discovered of these lurking injuries. A hectic flush and slight fever accompanied by thirst may be all that is apparent; and yet, after a few days, a clearly developed and probably active inflammation will show itself. Now, had the tongue been really and scientifically studied, and its sudden changes and altered appearances duly considered in connexion with the presence of thirst and frontal headache, any one might have certainly known at a glance the stealthy mischief at hand, and, what is of far greater consequence, fixed unmistakeably on the instant and never-failing remedy—the use of acid-medicines, combined with anodynes. A few doses of the mixtures prescribed in Nos. 39 and 40 will generally suffice; or the bitter elements may be added, as in the following:

43. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Paregoric-elixir | ʒiii | 3 „ |
| Tincture of gentian | ʒii | 2 „ |
| Syrup of red-poppies | ʒii | „ „ |
| Water | ℥v | 5 oz. |

Mix:—Take one table-spoonful every hour.

44. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Paregoric-elixir | ʒii | 2 „ |
| Tincture of calumba | ʒii | „ „ |
| Syrup of red-poppies | ʒiii | 3 „ |
| Water | ℥v | 5 oz. |

Mix:—Take two table-spoonfuls every three hours.

The infusions of gentian and calumba may also be used instead of the water; or, if from accident the medicine-chest be unprovided with paregoric, syrup of poppies, or the tinctures of gentian and calumba, the dilute acids may be given in water, with a few drops of laudanum added to each dose, or a one grain opium pill,—as the bitter element is combined in both. It may be well to mention here, likewise, that most drugs have a double property—namely, an acting principle, and a chemical base—the laboratory of the system receiving the former as a specific, the latter by an elective action. When these simple broad principles are once understood, it becomes an easy matter to substitute, for a drug that may not be at hand, some other possessing similar actions and properties.

The promptitude, with which incipient inflammation is met by the means just prescribed, not only arrests it, but prevents a vast amount of suffering, and often saves even life itself. Any one at all acquainted with disease, knows it when present or fully developed; but it is a far higher aim to penetrate, as it were, into the future, and by means of a few simple indices predict with certainty what may happen forty-eight hours afterwards—thus arresting the destroyer immediately on its first-indicated presence. It is not, as may well be supposed, so easy to do this, when it has once obtained full possession; and thus is it, that the public err respecting true medical skill, —attributing more merit on account of the narrow escape they have had from the jaws of death, than to the skilful forethought which arrested disease in its incipient stages.

In the more violent and rapid inflammatory actions of mucous membranes in tropical climates—such as the inflammatory cholera and dysentery, where the vital elements of life are disengaged with inconceivable rapidity, the principles I have here laid down will be found of the highest importance,— namely, that, instead of calomel and the other mercurials so madly used and vaunted as sheet-anchors for these critical diseases, the nitrous acid with the sedatives will be found far better to serve the purpose, as in the following formulæ:

45. Take—

| | | |
|---|---|---|
| Nitrous acid . . | ʒi | 1 drm. |
| Paregoric-elixir . | ʒiii | 3 ,, |
| Syrup of red-poppies | ʒiii | ,, ,, |
| Water . . . . . | ℥v | 5 oz. |

Mix:—Take one table-spoonful every hour.

46. Take—

| | | |
|---|---|---|
| Nitrous acid . . | ʒi | 1 drm. |
| Paregoric-elixir . | ʒvi | 6 ,, |
| Syrup of red-poppies . . . . | ʒiv | 4 ,, |
| Water . . . . | ℥ivss | 4½ oz. |

Mix:—Take one table-spoonful every two or three hours.

47. Take—

| | | |
|---|---|---|
| Nitrous acid . . . | ʒi | 1 drm. |
| Laudanum . . . . | ʒi | „ „ |
| Syrup of red-poppies | ʒiv | 4 „ |
| Water . . . . . | ℥v | 5 oz. |

Mix:—Take one table-spoonful every three hours.

48. Take—

| | | |
|---|---|---|
| Dilute nitric acid . | ʒi | 1 drm. |
| Dilute muriatic acid | ʒi | „ „ |
| Tincture of gentian | ʒii | 2 „ |
| Paregoric-elixir . | ʒii | „ „ |
| Syrup of red-poppies | ʒii | „ „ |
| Water . . . . | ℥v | 5 oz. |

Mix:—Take two table-spoonfuls every three hours.

The forms of medicine, Nos. 45—48, may be given in the arterial, inflammatory fevers, or in the low typhoid fevers, when the tongue is encrusted with a dry and black fur, and the teeth are covered with hard dry sordes, caused by the secretions being blackened with internal heat or excess of carbon. They here supply the system with vital gases and fluids to counteract those in which it is deficient,—and for lack of which, one prevailing principle, namely, the carbon, with its compounds, consumes all its elements, as well as life itself. Thus the simplest philosophy will show, that the arterial *non-eruptive* fevers have their source more frequently in the large intestines, which generate most abundantly the nitrogen or principal element of vitality; and when in their inflammatory conditions they cease to do this, the nitric and nitrous acids are most beneficial, as supplying the nitrogen-gas, of which the system is in need. On the other hand, in the arterial *eruptive* fevers, which originate in the stomach and upper parts of the alimentary canal, when the gastric acid is deficient, and, as a consequence, the chlorine and hydrogen gases are so likewise,—then the muriatic or hydrochloric acid is the best to be given for the supply of these elements. The tongue so fully points out these, as well as many other facts and principles, that without a perfect knowledge of its appearances, no treatment can be distinctly understood, and no remedial agent given with any certainty.

There are certain conditions of the female system which frequently operate in carrying off inflammatory tendencies; yet, when such states simply result from the bad habit of an organ, they greatly debilitate the frame. This is the case, when excessive constitutional fluxes occur. For either of these conditions, iron (as a constituent of the blood), combined with an acid or styptic property, is called for; and this offers itself in the muriate of iron. In the former case, this medicine may be given by itself;—but in the latter, when the vital energy has been reduced by loss of blood, and thirst indicates a deficiency of the bitter element,—it must be supplied. The following will be found useful for each of these conditions:

49. Take—

| | | |
|---|---|---|
| Tincture of muriate of iron . . | ʒii | 2 drms. |
| Simple syrup . . | ʒii | „ „ |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Take one table-spoonful every hour.

50. Take—

| | | |
|---|---|---|
| Tincture of muriate of iron . . | ʒii | 2 drms. |
| Simple syrup . . | ʒii | „ „ |
| Infusion of cinchona-bark . | ℥vss | 5½ oz. |

Mix:—Take two table-spoonfuls every three hours.

The latter (No. 50) is a black-looking mixture, and tastes like ink; but is a very valuable remedy.

The muriate of iron acts beneficially on delicate, weakly children from six to ten years of age,—especially those whose glands have a tendency to swell; and the formula No. 49 may be made up and administered pretty frequently by the tea or dessert-spoonful.

### LOTIONS, LINIMENTS, &c.

As regards external applications,—such as lotions, liniments, &c.,—the following will be very useful:

51. Take—

| | | |
|---|---|---|
| Goulard's-extract. | ʒi | 1 drm. |
| Rain-water . . . | ℥vi | 6 oz. |

Mix for a lotion;—to be applied by means of linen-rags to inflamed eyes; and where there is pain one drachm of laudanum may be beneficially added. It is useful, also, as above prescribed to cool a stinging irritable skin, shingles, and many forms of skin-eruption; for some cases of which the quantity of Goulard's-extract may be doubled.

52. Take—

| | | |
|---|---|---|
| Laudanum . . | ʒii | 2 drms. |
| Rain-water . . | ℥iv | 4 oz. |

Mix for a lotion;—to be used, when the eyes are very tender and painful,—especially after any foreign substance has got into them. Inflammation thus produced may be treated by putting a drop of laudanum pure into the eye by means of a feather. This will perhaps make them smart at first, but will afterwards greatly relieve them.

53. Take—

| | | |
|---|---|---|
| Nitric acid | ♏ii v iii | 2 or 3 min. |
| Rain-water | ℥i | 1 oz. |

54. Take—

| | | |
|---|---|---|
| Nitric acid | ♏iii v iv | 3 or 4 min. |
| Rain-water | ℥i | 1 oz. |

The lotion No. 53 may be usefully applied with linen-rags to inflamed or bloodshot eyes. No. 54 is intended for large, indolent, discharging sores, with ichorous or fœtid effluvia. Before the sore is dressed with the ointment or dressing, the wound should be well saturated with this lotion, which, being of a disinfectant or de-odorising character, stimulates the base of the wounds or ulcers to healthy action.

55. Take—

| | | |
|---|---|---|
| Castor-oil | each ℥ss | ½ oz. |
| Soap-liniment | | |
| Camphor ,, | | |

Mix for a liniment;—to be used for chronic fixed pains and weak joints after sprains,—or well rubbed twice a day down the spines of children showing weakness in the lower extremities.

56. Take—

| | | |
|---|---|---|
| Castor-oil | each ℥ss | ½ oz. |
| Soap-liniment | | |
| Camphor ,, | | |
| Laudanum | | |

Mix for a liniment;—to be applied to aching joints with a well-saturated piece of lint left on the part, and the whole covered with gutta-percha to retain the moisture. This relieves the pain by producing a beneficial counter-irritation.

57. Take—

| | | |
|---|---|---|
| Soap-liniment . | ℥i | 1 oz. |
| Sal-volatile . . | ʒii | 2 drms. |

Mix for a liniment;—to be rubbed on the chest in the congestive coughs of children.

58. Take—

| | | |
|---|---|---|
| Soap-liniment . . | ʒvi | 6 drms. |
| Tincture of arnica . | ʒii | 2 ,, |

Mix for a liniment;—useful for *unbroken* chilblains, when well rubbed in frequently during the day.

Castor-oil may be used by itself in chronic rheumatism,—especially congestive rheumatism of the joints, and the first tendencies to swelling of the finger-joints in rheumatic-gout. If the hand swells from this cause, it may be wetted with common gin, then floured and suffered to get dry. When dry, keep rubbing it; when the dried flour, having formed a slight cake, will make a soft, gritty substance under the hand. This, though so simple a remedy, is often very efficacious, and the friction promotes circulation. Even rubbing by itself is a very useful act, and sometimes does as much good as any liniment.

The very use of a liniment, however, is an inducement to pursue these means of external treatment. When liniments are in store, they may be used at discretion,—more of one and less of another, according to circumstances and the state of the skin. Thus, some skins cannot bear so much camphor-liniment as others, but can endure the soap-liniments better.

59. Take—

| | | |
|---|---|---|
| Tincture of arnica | ʒii | 2 drms. |
| Rain-water . . | ℥i | 1 oz. |

Mix:—To be applied on a piece of lint saturated therewith to discolorations from bruises and blows, or to stop bleeding.

60. Take—

Tincture of muriate of iron.

Saturate a piece of lint therewith, and apply to cuts, wounds, &c., on which it acts as a powerful styptic, and stops the bleeding. If necessary, apply above it a compress of lint;—as scalp-wounds especially bleed freely and require considerable pressure, as well as a styptic, to stop the bleeding.

## OINTMENTS, &c.

The great utility of ointsments often depends on their combinations, which I will show as I have those of all other drugs.

### THE ELDER-FLOWER OINTMENT

is exceedingly cooling and pleasant after blisters or mustard-poultices, or to allay the itching from leech-bites. Should these have caused any running sores, then add—

### THE ZINC OINTMENT.

Should there be much irritation, which the last-mentioned will not allay, then add—

### GOULARD'S-EXTRACT.

In tettery or watery eruptions of the skin, with tendency to scab, and in many forms of skin-eruption, add—

### THE RED OR NITRIC OXIDE OF MERCURY OINTMENT.

Again, the elder-flower ointment forms a good base for lowering the strength of the mercurial or zinc ointments; and the following prescriptions will suffice to indicate the proportions to be used of each. Their beneficial action will at once be apparent to any who give the least attention to them, and the circumstances under which they are used.

61. Take—

| | | |
|---|---|---|
| Elder-flower ointment . . . . | ʒvi | 6 drms. |
| Zinc ointment . . | ʒii | 2 „ |

Mix.

62. Take—

| | | |
|---|---|---|
| Elder-flower ointment . . . . | ʒvi | 6 drms. |
| Zinc ointment . | ʒii | 2 „ |
| Goulard's-extract | ʒi | 1 „ |

Mix.

63. Take—

| | | |
|---|---|---|
| Elder-flower ointment . . . . | ʒvi | 6 drms. |
| Zinc ointment . | ʒii | 2 „ |
| Red oxide of mercury . . . . | ʒii | „ „ |
| Goulard's-extract | ʒi | 1 „ |

Mix.

64. Take—

| | | |
|---|---|---|
| Zinc ointment . | ʒiv | 4 drms. |
| Red oxide of mercury . . . . | ʒii | 2 „ |

Mix.

65. Take—

| | | |
|---|---|---|
| Elder-flower ointment . . . . | ℥i | 1 oz. |
| Strong mercurial ointment . . | ʒss | ½ drm. |

Mix.

66. Take—

| | | |
|---|---|---|
| Elder-flower ointment . . . . | ʒvi | 6 drms. |
| Zinc ointment . | ʒii | 2 „ |
| Strong mercurial ointment . . | ʒi | 1 „ |

Mix.

Where the Goulard's-extract is used, the several ointments should first be well mixed together on the slab with the spatula, then the Goulard's-extract added; and instead of rubbing this down with the ointment as before, the spatula should be kept upright in the hand, and the ointment twisted well about, till the whole has been taken up. It will then form a creamy mass.

The ointment No. 61 may be used as a dressing for many forms of tender or abraded surfaces.

No. 62 may be used in irritations of the skin, and especially for irritations of the anus, which are often the forerunners of piles;—and when piles are actually present, this ointment should be constantly applied,—particularly after actions of the bowels. In these states, the greatest care and cleanliness should be observed, and warm-water sponging used at least twice a day, and the ointment applied directly afterwards. For any chafing of the skin from riding or walking, or from the friction of linen, or from acid perspirations, this will be found very comforting and useful, as well also as for roughnesses or chaps on the face caused by frost,—sore lips, and the tettery eruptions (often consequent on colds) on the sides of the nose, the inside of the nostrils,—with all other irritations of the skin.

No. 63 is an excellent ointment for many of the diseases of the scalp, as well as for dandriff and scurf; also for many superficial ulcers having a disposition to spread. Some people, especially children of gross habit, have red sores at the bend of the leg behind the knee, and at the bend of the arm; for cases like these this ointment will be found a very effective remedy.

No. 64 may be used for the same purposes as the ointment last mentioned, being somewhat stronger.

No. 65 is a good dressing for open and more deeply-seated ulcers and wounds,—which should first be washed with the nitric-acid lotion No. 54. The ointment should be applied with a spatula or paper-knife directly to the wound, so as even to fill it up; and then apply over it a piece of lint well saturated in cold water; the object being to stimulate the base of the wound to promote healthy granulations, without letting them grow too fast;—else proud flesh would be the result. Should the latter come up to the surface of the surrounding skin, preventing it from healing properly from the edges, by gradually circumscribing the wound,—then lunar-caustic should be applied every day instead of the lotion, and the wound afterwards dressed with this ointment, or No. 66—a still stronger one.

A substance has lately been introduced, called *gutta-percha tissue*, which is very reasonable in price, and has almost altogether supplanted the oil-silk. Now, as all ointments are greasy, and from the heat of the skin become oily,—it will be readily understood, that when any lint or linen-rag is applied upon them, they will be absorbed by these textures; the skin, therefore, loses much of their beneficial action. To prevent this is the object of the gutta-percha; and it will be found a good plan to apply the ointment first direct to the part, and then cover the whole with gutta-percha, which causes the application to effect greater benefit. It may be necessary, however, to apply a piece of lint or linen-rag to the parts;—in which case the ointment should be placed directly on the skin, and the lint or linen-rag applied next—*well saturated with cold water*—the gutta-percha being then applied as a covering over all. The water not only prevents absorption of the ointment by the lint, &c., but keeps the skin quite moist:—nay, after many hours, on removing the gutta-percha, the lint or rag will still be found wet;—which would not be the case, unless the gutta-percha were used.

The use of strapping, and the modes of binding up wounds, have already been treated of in Chapter XIV., on Cuts, Wounds, and Lacerations.

I have spoken of the treatment of "Infants and Children" under that especial head in an early chapter of this book; but I reserve to this place certain forms of prescription suited to their age and complaints, in order to show how efficacious a few simple remedies may be for their apparently numerous diseases, which, nevertheless, arise from only very few causes.

First of all, I would earnestly desire all persons to bear constantly in mind, how delicate is the machinery of infants' systems, and that their secretions have not yet been influenced by mental anxieties or bodily passions, or any great variety of diet; unless indeed unwise parents have, from mistaken kindness (which is often as bad as none at all), been induced to give them what is pernicious,—such as meat-diet, excess of milk-food, thick, heavy, and indigestible farinaceous food, all descriptions of sweet cakes, and every variety of fruit,—thus indulging their infant gluttony and craving for all they see before them,—nay, what is worse than all, giving them wine and other alcoholic beverages. The inevitable result of all this pampering is *an extreme acid, and even acrid state of the children's secretions,* which by chemical action generate morbid poisons causing bodily pains and sufferings that are too often only the precursors of an early death; and hence, as a matter of course, great trials and anxieties are entailed on their ill-judging parents.

Nevertheless, the diseases of infants and children are easily managed, if care be taken not to complicate them with drugs, no forms of which should be used that have any cumulative properties in themselves, nor any administered, but that class which neutralise morbid elementary matter or carry it away. For these reasons the early use of the mercurials is to the last degree pernicious; for, when once these are commenced with, medication never ceases. If a child has excess of self-dependent power, and gets a series of plethoric diseases leading up to fits, convulsions, and infant-apoplexies, how easy is their reduction! If another child, on the other hand, has its natural powers in abeyance, how simple are the means of exciting them! Again, supposing the natural powers to be well balanced, but still from fault of diet, or the appropriation of it, an unsatisfactory condition ensues, how simple is the mode of correction! In short, a general adherence to the rule of never giving any drug of an absorbent character, but simply correcting and keeping the whole system free and clear of morbid elements, forms the whole philosophy of infant-medication.

The following formulæ will be found useful for the slighter congestive maladies of infants and children:

67. Take—

| | | |
|---|---|---|
| Ipecacuanha wine . . | ♏xxx | 30 min. |
| Water . . | ℥i | 1 oz. |

Mix:—Give a tea-spoonful every three hours.

68. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ♏xxx | 30 min. |
| Simple syrup, or sugar . . . | ʒi | 1 drm. |
| Water . . . . | ℥i | 1 oz. |

Mix:—Give two tea-spoonfuls three times a day.

Both the above should be administered soon after meals.

69. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ʒss | $\frac{1}{2}$ drm. |
| Carbonate of magnesia . . . | ʒi | 1 „ |
| Water . . . . | ℥ii | 2 oz. |

Mix:—Give a dessert-spoonful frequently.

70. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ʒss | $\frac{1}{2}$ drm. |
| Sal-volatile . . | ʒss | $\frac{1}{2}$ „ |
| Carbonate of magnesia . . . | ʒi | 1 drm. |
| Powdered rhubarb | ʒss | $\frac{1}{2}$ „ |
| Simple syrup . . | ʒi | 1 „ |
| Water . . . . | ℥iii | 3 oz. |

Mix:—Give a dessert-spoonful, when griping pains arise attended with slimy green motions, crying, and general distress.

These act as antacids, and at the same time carry off elements which have been neutralised.

71. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ♏xx | 20 min. |
| Sweet sp. of nitre | ♏xx | ,, ,, |
| Prepared chalk . | ℥ss | ½ oz. |
| Water . . . . | ℥iss | 1½ ,, |

Mix:—Give a dessert-spoonful after every loose or griping motion, or in diarrhœa. Should the pain be great or the diarrhœa frequent,—then add—

| | | |
|---|---|---|
| Paregoric-elixir . | ʒi | 1 drm. |

72. Take—

| | | |
|---|---|---|
| Powdered rhubarb . | ʒss | ½ drm. |
| Sal-volatile . . . | ʒss | ,, ,, |
| Prepared chalk . . | ʒii | 2 ,, |
| Water . . . . . | ℥iii | 3 oz. |

Mix:—Give a dessert-spoonful very frequently.

These act both as tonics and antacids, and are beneficial when infants lose flesh or become emaciated. Their object is, to prevent too great an action of the bowels,—thus giving time for Nature to derive from the fœcal deposits in the large intestines important nitrogenised and vital elements.

73. Take—

| | | |
|---|---|---|
| Prepared chalk . | ℥ss | ½ oz. |
| Water . . . . . | ℥iss | 1½ ,, |

Mix:—Give a dessert-spoonful after every liquid motion,—if they be frequent, causing diarrhœa.

74. Take—

| | | |
|---|---|---|
| Prepared chalk . | ℥ss | ½ oz. |
| Simple syrup . . | ʒii | 2 drms. |
| Water . . . . . | ʒx | 10 ,, |

Mix:—Give a dessert-spoonful after each liquid motion, as in No. 73:—the syrup is merely added to soften the rawness of the chalk.

75. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ʒii | 2 drms. |
| Simple syrup . . | ʒii | ,, ,, |
| Water . . . . | ℥ss | ½ oz. |

Mix:—Give a tea-spoonful every five minutes, until the child vomits.

76. Take—

| | | |
|---|---|---|
| Antimonial wine | ʒii | 2 drms. |
| Water . . . . | ʒvi | 6 ,, |

Mix:—Give a tea-spoonful every ten minutes, till vomiting is excited.

These emetic-mixtures are to be given after a meal; No. 76 will be the most preferable, when children are gross and plethoric, pale-looking, waxy or doughy,—a state that too frequently precedes convulsions from an overloaded stomach. On the day following a vomit and the use of the antacid medicines, two or three grains of the grey-powder may be given, followed in two hours afterwards by a tea-spoonful of castor-oil; and it is well to recollect, that the first of these should never be given without the oil, nor the latter without the powder preceding it; because the oil serves to carry off the powder, so that it may not become absorbed;—whereas, if the castor-oil be given alone, it often produces costiveness of the bowels afterwards.

77. Take—

| | | |
|---|---|---|
| Ipecacuanha wine | ʒi | 1 drm. |
| Carbonate of soda | ʒss | ½ ,, |
| Sweet sp. of nitre | ʒss | ,, ,, |
| Syrup of saffron . | ʒii | 2 ,, |
| Water . . . . . | ℥vss | 5½ oz. |

Mix:—Give a dessert-spoonful every two or three hours.

78. Take—

| | | |
|---|---|---|
| Antimonial wine . | ʒi | 1 drm. |
| Carbonate of soda | ʒss | ½ ,, |
| Sweet sp. of nitre | ʒss | ,, ,, |
| Syrup of saffron . | ʒii | 2 ,, |
| Water . . . . . | ℥vss | 5½ oz. |

Mix:—Give a dessert-spoonful frequently, if the breathing is oppressed.

Both of these last mentioned (77 and 78) will be found useful in measles as antacids for the purpose of keeping the patient a little nauseated. He should likewise be kept very warm, so that the eruption may not be checked. Should the latter occur and the breath be drawn with difficulty or through distended nostrils, it will be requisite to apply a mustard-poultice;—and should not that produce sufficient counter-irritation, then apply a leech to the chest.

79. Take—

| | | |
|---|---|---|
| Compound tragacanth powder . | ʒss | ½ drm. |
| Ipecacuanha wine | ʒss | ,, ,, |
| Tincture of balsam of tolu . . . | ♏x | 10 min. |
| Simple syrup . . | ʒi | 1 drm. |
| Water . . . . . | ℥iii | 3 oz. |

Mix:—Give a tea-spoonful very frequently.

80. Take—

| | | |
|---|---|---|
| Compound tragacanth powder . | ʒss | ½ drm. |
| Sweet sp. of nitre | ʒss | ,, ,, |
| Simple syrup . . | ʒss | ,, ,, |
| Tincture of balsam of tolu . . . | ♏xx | 20 min. |
| Water . . . . . | ℥iii | 3 oz. |

Mix:—Give a tea-spoonful very frequently.

These are valuable in the congestive coughs and colds to which infants and children are so frequently subject; and No. 80 is more especially beneficial, when the skin is dry and perspiration required.

Thus, then, all the congestive diseases incident to infants and children may be cured by very simple formulæ, prescribed as above. It should never be forgotten, however, that, in congestive actions, be the medicine however valuable, *it should never be given to infants cold*, but the dose required put into a tea-cup, and that placed in hot water, as the best plan for warming it.

In all the congestive actions for which the foregoing prescriptions are requisite, the tongue will present a variety of white, coloured, and more or less furred appearances; and it is necessary to recollect, that, as disease *progresses*, so the fur gradually occupies the whole surface of the tongue *from edge to edge*, as well as *from the back to the tip*,—but that if disease is *on the decline*, the fur will occupy the centre alone, going gradually backwards, *leaving the edges and the tip*. Thus, by a simple rule unerringly detected by the eye, that form of medication can be adopted which shall arrest disease or hasten its departure. In the same way, also, is pointed out when a more nourishing diet should be commenced; for delay in this is not unfrequently attended with injurious consequences.

Again, the more aggravated cases of congestive actions will—according to the seasons and many other circumstances, occurring in the mansion as well as the cottage,—frequently change to or terminate in scarlet-fever. The tongue, before furred and coated, will—when this happens—become suddenly clean and red—the body and face being meanwhile suffused with a scarlet blush. The following forms of medicine, quite opposite to the preceding, will now be as imperative as the others were before:

81. Take—

| | | |
|---|---|---|
| Dilute muriatic acid . . . . | ʒii | 2 drms. |
| Syrup of red-poppies . . . . | ʒii | ” ” |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Give a tea-spoonful or dessert-spoonful every hour or half-hour, according to the age of the child.

82. Take—

| | | |
|---|---|---|
| Dilute muriatic acid . . . . | ʒiss | 1½ drm. |
| Paregoric-elixir . | ʒii | 2 ” |
| Syrup of red-poppies . . . . | ʒii | ” ” |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Give a dessert-spoonful or table-spoonful every hour or two, according to the age of the child.

83. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . . | ʒi | 1 drm. |
| Syrup of red-poppies . . . . | ʒii | 2 „ |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—Give a dessert-spoonful or table-spoonful every hour, according to the age of the child.

84. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid . . . . | ʒi | 1 drm. |
| Paregoric-elixir . | ʒiii | 3 „ |
| Syrup of red-poppies . . . . | ʒii | 2 „ |
| Water . . . . | ℥v | 5 oz. |

Mix:—Give a dessert-spoonful or table-spoonful every hour or two, according to the age.

*N.B.—These medicines, unlike those of an alkaline character, may be given cold.* Should the throat be sore, which is always more or less the case, let the mixture be taken into the mouth; if it be not too hastily swallowed, the throat will get well gargled therewith. In these cases, it is imperative that the bowels should be kept as free from any action as possible; because success is always most certain, when no action occurs from the commencement to the height of the fever,—which generally takes three or four days. If the bowels act naturally, add a larger portion of paregoric. Should any inordinate action come on, or more even than one or two actions take place every twenty-four hours, the brain will become disturbed, as indicated by wanderings of the mind and pain across the forehead. Arrest, then, these purging actions by half a grain or a grain of opium in the form of a pill. It is seldom, however, that the brain is affected, if the bowels are quiet. Some cases of scarlet-fever are very mild; others are attended with a slight congestion of the lungs, which will be indicated by a little fur down the centre of the tongue: in other cases, again, the tongue will present a glary-red and varnished, slimy appearance, accompanied by more or less distress in the action of the heart. These appearances do not occur, unless there is a tendency to a low typhoid state; when the stimulus of wine or sal-volatile may be necessary. Let the skin here be cooled by frequent spongings with tepid vinegar and water. If the head be affected, apply cold-water rags across the forehead from temple to temple.

85. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Ipecacuanha wine | ʒi | „ „ |
| Syrup of red-poppies | ʒii | 2 „ |
| Water | ℥vss | 5½ oz. |

Mix:—Give one table-spoonful every hour or two.

This will exert a slight stimulating action on the bronchial tubes; and as soon as the fur has left the centre of the tongue the ipecacuanha wine may be withdrawn.

86. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Ipecacuanha | ʒss | ½ „ |
| Tincture of digitalis | ʒiss | 1½ „ |
| Syrup of red-poppies | ʒii | 2 „ |
| Water | ℥vss | 5½ oz. |

Mix:—Give one table-spoonful every hour or two.

As soon as this relieves the heart's action and lessens the fever, withdraw the tincture of digitalis, and substitute paregoric, as in the former prescriptions.

Scarlet-fever is the only arterial, or inflammatory alkaline fever incident to infants and children, in which the acids and anodynes are employed. Almost all their other fevers are venous or congestive, and require the alkaline treatment; for when the obstructions are removed which caused them, they speedily vanish, and convalescence ensues. After the subsidence of scarlet-fever, it is quite unnecessary, but rather injurious, to give any form of aperient-medicine; whereas after measles, on the contrary, it is absolutely necessary to purge the patient thoroughly.

By the means above indicated, the diseases of infants can be managed with a great degree of ease and simplicity, as well as with almost certain success. They seldom require strong alkalis; because, if the stomach be loaded, an emetic after a meal will speedily relieve them, and there is little acidity left afterwards to correct. It is a rare occurrence for children's LIVERS to get out of order, and when they do, emetics relieve them. If they be plethoric, keep them occasionally a little nauseated with ipecacuanha, and give them only the scantiest supplies of nourishing diet.

The use of quinine in tropical climates—whether in the absence of fever as a preventive thereof, or in the actual presence of fever itself—is one of the best admitted practices in supported by a philosophy with which I am acquainted. Nevertheless, if the highly concentrated bitter properties in its alkaloid base, and in the acid with which it is combined, supply simultaneously these two elements in which the system is deficient during fevers, a very good philosophy may doubtless be laid down for its beneficial actions; and such I believe to be really the case.

The combination of alkalis with the bitters, as previously prescribed, will prove most beneficial, when a white and coated tongue prevails; whereas, if that organ be white, flabby, and not coated, or red and inclined to dryness, then the quinine with the addition of the acid will be useful;—which acid should be regulated according to circumstances. As regards quinine, it is requisite to observe, that when intended for a mixture, it should first be put into a mixture-bottle, a little water added, and the whole well shaken up together; which done, the intended quantity of acid may be put to it. If only enough be required to dissolve the quinine, it should be added drop by drop, till the quinine and water form a perfectly clear solution;—this will be the proper quantity required. Any larger quantity of acid prescribed may be added without reference to the last circumstance, as the second of the following formulæ will illustrate:

87. Take—

Quinine . . . gr.xxxvi 36gr.
Dilute sulphuric acid; as much, drop by drop, as will dilute it.
Water . . . ℥vi 6 oz.

Mix,—as above directed:—One table-spoonful to be taken every three hours.

88. Take—

Quinine . . . gr.xxxvi 36gr.
Dilute sulphuric acid . . . ʒi 1 drm.
Water . . . ℥vi 6 oz.

Mix: — One table-spoonful to be taken every three hours.

Thus, it will be seen, that one table-spoonful being about equal to half an ounce, and the quantity ordered being twelve half-ounces (or table-spoonfuls), containing in all thirty-six grains of quinine, each dose contains three grains of the quinine. I may observe, too, that it is always useful to adhere to one standard of mixture, and for this reason I have adopted throughout the six-ounce mixture; so that an easy calculation can always be made as to the quantity of every drug in the prescription:

89. Take—

| | | |
|---|---|---|
| Quinine . . . | ʒi | 1 drm. |
| Dilute sulphuric acid . . . . | ʒi | ,, ,, |
| Water . . . . | ℥vi | 6 oz. |

Mix:— One table-spoonful to be taken three times a day, or two table-spoonfuls twice a day.

90. Take—

| | | |
|---|---|---|
| Quinine . . . | ʒi | 1 drm. |
| Dilute sulphuric acid . . . . | ʒi | ,, ,, |
| Paregoric . . . | ʒiii | 3 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:— One table-spoonful to be taken three times a day.

The simple anodyne or paregoric (as given in No. 90) will prove useful, in case that the quinine or acid gripes the bowels, as the latter will do occasionally;—and indeed, wherever quinine and acid are necessary, the addition of an anodyne is never out of place. The above forms of prescription will serve every useful purpose, if the syrup of red-poppies cannot be obtained; but if it can, it is preferable, as tending to soften the mixture, and make it more elegant in appearance and agreeable to the taste.

91. Take—

| | | |
|---|---|---|
| Quinine . . . | ʒi | 1 drm. |
| Dilute sulphuric acid . . . . | ʒi | ,, ,, |
| Syrup of red-poppies . . . . | ʒiii | 3 ,, |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—One table-spoonful to be taken every three hours.

92. Take—

| | | |
|---|---|---|
| Quinine . . . | ʒi | 1 drm. |
| Nitrous acid . . | ʒss | ½ ,, |
| Paregoric . . . | ʒiiss | 2½ ,, |
| Syrup of red-poppies . . . . | ʒiv | 4 ,, |
| Water . . . . | ℥v | 5 oz. |

Mix:—One table-spoonful to be taken three times a day.

The last of these prescriptions (No. 92) will prove extremely beneficial after a slight dysentery or inflammatory cholera, when the tongue is red;—and it should be persisted in for some time, especially in tropical climates, where the mixture will bear an increase of the nitrous acid to one drachm, with benefit to the patient.

93. Take—

| | | |
|---|---|---|
| Quinine . . . | ʒss | ½ drm. |
| Dilute muriatic acid . . . . | ʒii | 2 „ |
| Tincture of gentian . . . . | ʒii | „ „ |
| Water . . . | ℥vss | 5½ oz. |

Mix:—Two table-spoonfuls to be taken three times a day.

94. Take—

| | | |
|---|---|---|
| Quinine . . . | ℈ii | 2 scr. |
| Dilute muriatic acid . . . . | ʒii | 2 drm. |
| Tincture of calumba . . . | ʒiii | 3 „ |
| Water . . . . | ℥vss | 5½ oz. |

Mix:—One table-spoonful to be taken four times a day.

These forms of mixture (Nos. 93, 94) act very effectively, *when the tongue is clean and red*, after the imprudent and pernicious use of calomel and the other mercurials, or in any diseases of the mucous membranes in hot climates,—as well, also, as in low fevers arising from debility, and the depressing influences produced by any poisonous drugs. On the other hand, should the tongue be coated *and moist*, and these symptoms be present,—then soda, combined with gentian or calumba, is the most appropriate remedy, accompanied by a total abstinence from alcoholic drinks.

The quinine-pill is neither so useful, nor so much to be depended on as the mixture, when the tongue is red, clean, and glary; but it may be given with advantage, when that organ is furred, coated, and has a tendency to become dry; because this latter appearance denotes an acid and congestive state of the system, and consequently the presence of a certain amount of gastric, muriatic, or other acids in the stomach, which help to dissolve the quinine. In such cases, the following forms may be adopted:

95. Take—

| | | |
|---|---|---|
| Quinine . . . | gr.xxiv | 24gr. |
| Powdered rhubarb | gr.xii | 12 „ |

Dilute sulphuric acid; enough to make a paste with the above.

Divide into twelve pills;—one to be taken three or four times a day.

96. Take—

| | | |
|---|---|---|
| Quinine . . . | gr.xxiv | 24gr. |

Extract of henbane
Dilute sulph. acid; enough to make a paste with the above.

Divide into twelve pills;—one to be taken every four hours.

If it be found necessary to take larger quantities of quinine in this form than here prescribed, two or three pills (such as Nos. 95, 96) may be taken at one time, and repeated accordingly.

A few miscellaneous prescriptions from the drugs herein mentioned will, also, be found useful, as showing how great a variety of forms may be compounded therefrom.

97. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Syrup of red-poppies | ʒii | 2 ,, |
| Water | ℥iiss | 2½ oz. |

Mix:—to be used as a gargle.

98. Take—

| | | |
|---|---|---|
| Dilute sulphuric acid | ʒi | 1 drm. |
| Syrup of red-poppies | ʒii | 2 ,, |
| Infusion of cinchona bark | ℥vss | 5½ oz. |

Mix:—to be used as a gargle.

Some persons have a tendency to a dry state of the throat, with a slight blush, redness, or soreness, on the least occasion of acidity in the stomach. To correct the latter, the prescriptions Nos. 1—12 will be found useful;—while the gargle No. 97 will relieve the throat. Others have this state of throat, attended with an inflammation that quickly produces ulceration;—in which case, the same medicines (1—12) will relieve the primary acid cause in the stomach, and the gargle No. 98 be of great service on account of the bark.

Some persons of nervous, delicate habits require a tonic, or a sedative and tonic combined;—in which case the following forms of pills will be found beneficial:

99. Take—

| | | |
|---|---|---|
| Extract of gentian | gr.xii | 12 gr. |
| Powdered rhubarb | gr.xxxvi | 36 gr. |

Incorporate with a spatula on a slab, and divide into twelve pills;—one or two to be taken twice or thrice a day between the hours of meals.

100. Take—

| | | |
|---|---|---|
| Extract of henbane | ʒss | ½ drm. |
| Powdered rhubarb | ʒss | ,, ,, |

Incorporate with the spatula on a slab, and divide into twelve pills;—one to be taken two or three times a day.

Should the extract not be soft enough to take up the powder, add water sufficient to accomplish it.

101. Take—

| | | |
|---|---|---|
| Extract of gentian | gr.xii | 12gr. |
| Extract of henbane | gr.xxiv | 24gr. |

Incorporate as above, and divide into twelve pills;—one to be taken at eleven and four o'clock.

102. Take—

| | | |
|---|---|---|
| Extract of henbane | gr.xxx | 30gr. |
| Camphor | gr.xxiv | 24 „ |
| Spirits of wine; enough to dissolve the camphor. | | |

Incorporate, and divide into twelve pills,—of which from two to five make a dose.

The last of these (No. 102) is a very valuable pill for young women suffering from pain at their constitutional periods. Two or three should be taken at such times, with a little hot, but weak spirit and water,—as the spirit dilutes the camphor in the pill. After four, eight, or twelve hours, two more may be repeated, if in pain,—which will come on at those periodical hours. Their action is, to relieve nervous excitement and tranquillise the system.

During the early periods of nursing after confinements, should there be a tendency to very full breasts, it may be expedient to reduce the action of the milk-glands, and so to prevent those most painful occurrences incident to maternity,—namely, abscesses of the breast. The following pills will, under such circumstances, be found of great service, as acting on the absorbents, lessening the quantity of milk, and often preventing engorgement of the milk-tubes and the formation of abscesses:

103. Take—

| | | |
|---|---|---|
| Tartarised antimony | gr.iii | 3gr. |
| Grey powder | gr.iii | „ „ |
| Powdered opium | gr.vi | 6 „ |
| Spirits of wine,—enough to make a mass. | | |

Divide into twelve pills;—one to be taken two or three times a day.

104. Take—

| | | |
|---|---|---|
| Tartarised antimony | gr.iii | 3gr. |
| Grey-powder | gr.iii | „ „ |
| Dover's-powder | gr.xii | 12 „ |
| Spirits of wine,—enough to make a paste. | | |

Divide into twelve pills;—one to be taken every four hours.

The drugs used in both these formulæ should first be well incorporated by being rubbed down in the mortar; after which the whole should be put on the slab, and the spirits of wine added, to make a mass.

Children, and young persons generally, may be beneficially treated with aperients in powders, which are preferable for them to any other form of that class of medicines; and the following prescriptions will be found useful:

105. Take—

| | | |
|---|---|---|
| Grey-powder | gr.i v ii | 1 or 2 gr. |
| Scammony | gr.iv v vi | 4 or 6 ,, |

Mix in a mortar:—To be taken at bed-time.

106. Take—

| | | |
|---|---|---|
| Grey-powder | gr.ii v iii | 2 or 3 gr. |
| Powdered jalap | gr.vi v viii | 6 or 8 ,, |

Mix in a mortar:—To be taken at bed-time.

107. Take—

| | | |
|---|---|---|
| Powdered jalap | gr.iii v iv | 3 or 4 gr. |
| Powdered rhubarb | gr.vi v viii | 6 or 8 ,, |

Mix in a mortar:—To be taken when most convenient.

108. Take—

| | | |
|---|---|---|
| Scammony | gr.iii v iv | 3 or 4 gr. |
| Powdered rhubarb | gr.iv v vi | 4 or 6 ,, |

Mix in a mortar:—To be taken when most convenient.

The above powders (105—108) must be mixed in a little jam or honey, or in sugar and water, but *not* in treacle.

109. Take—

| | | |
|---|---|---|
| Powdered jalap | gr.iii v iv | 3 or 4 gr. |
| Powdered rhubarb | gr.iv v vi | 4 or 6 ,, |
| Carbonate of magnesia | gr.vi v viii | 6 or 8 ,, |

Mix in a mortar:—To be taken when convenient.

110. Take—

| | | |
|---|---|---|
| Powdered rhubarb | gr.vi v viii | 6 or 8 gr. |
| Carbonate of magnesia | gr.viii v x | 8 or 10 ,, |

Mix in a mortar:—To be taken when convenient.

The two last powders should be well mixed with sufficient water to make a creamy-like draught, neither too thick nor too thin. Those, however, that contain the grey-powder or scammony, *should never be mixed with water*, as they act far better when concentrated in a thick mass.

## MUSTARD-PLAISTERS, BLISTERS, &c.

As mustard-plaisters and blisters are occasionally necessary to be used, it is well to observe that, when the former are to be applied to infants or young children, equal proportions of flour and mustard should be mixed in a cup with some hot water, so as to be a trifle thicker than the mustard used for table. It should then be spread while hot on a piece of linen-rag, applied at once, and kept on only long enough to cause a slight redness, or counter-irritation. When blisters are required, a piece of the blistering-ointment should be moistened in the palm of the left hand by the right thumb, and spread on a piece of diachylon-plaister previously cut to the proper size; but care should be taken to leave a quarter of an inch uncovered all round, so that a smooth, regular surface may be obtained. When applied, the back should be warmed just sufficiently to make the edges adhere closely to the skin.

One great and important piece of advice with respect to these applications is—that with both infants and children, neither mustard-plaisters nor blisters should ever be allowed to remain on longer than ten or twelve minutes. I have, indeed, seen painful consequences from a neglect of this precaution,—such as the production of wounds and deeply-seated ulcers. As regards adults, on the other hand, whose skin is of a firmer and denser structure, the mustard poultices may be made thicker and without flour, and kept on from half an hour to an hour; and as for blisters, they will be all the more effective from being on twelve, eighteen, or even twenty-four hours.

The soap and diachylon-plaisters will be found useful in long illness, during which the patient has become emaciated through protracted confinement to the bed; in which case they may be beneficially used for covering tender places about the seat, in order to prevent the rubbing of the bed and save the annoyance of painful and irritating bed-sores.

I have shown in the preceding pages, that a certain number of drugs of an effective and simple character may be used separately or conjointly, to bring a thousand varied conditions of bodily disease to a successful and curative issue; and it will be seen likewise, that I have totally excluded two forms of medicines very generally prescribed, namely, *calomel* and *blue-pill.* I have learnt, in fact, to do without them—even in those cases for which the highest received authorities have pronounced them to be sheet-anchors and indispensable remedies. A quarter of a century's very successful practice (during the last eighteen years of which I have quite discontinued the use of those highly pernicious drugs) has fully convinced me that they have been greatly over-vaunted. There was a time when medicine was practised without them; but when they attained their zenith, they were inordinately used, as fashion and universal opinion prevailed in their favour. Latterly, however, even the profession itself have admitted, that these drugs are by no means so indispensable as they were once thought to be, and consequently the doses and quantities given have been reduced;—nor is it an uncommon thing to hear that calomel and blue-pill are not given so much as they used to be some few years ago. The public are at all events led to think so; and the profession assent to their ideas, because they see a strong crusade made against their indiscriminate use. Notwithstanding this, however, I am compelled to say, that, from what I see in the reports of cases published in our medical periodicals, and cases read before the medical societies, as well also as from the information I have been able to obtain from those dispensing chemists who make up the largest number of prescriptions in this metropolis,—my conviction is, that even now the use of the mercurials is excessive, and far beyond any absolute necessity; nor have I any hesitation in alleging, that this pernicious species of drugging has operated in bringing a large amount of discredit on the scientific practice of medicine, and had the effect, moreover, of advancing and enriching the great army of quacks and nostrum-mongers. In no part of Europe, indeed, are calomel and plue-pill given to the same extent as in England and the British colonies, or wherever, in short, the practice of the British school of medicine prevails.

Nevertheless, it were unfair to omit the expression of my conviction, that no country can boast of a better-informed class of medical men generally, than our own; for even in the provinces throughout England, as good and soundly-instructed physicians, surgeons, and general practitioners are to be found as in London itself; and this, I believe, cannot be said of the practitioners of medicine in the provinces of any other part of Europe. Their only fault, then, is, that they succumb to the slavery of fashion, custom, and received authority; and in this I am bound to say they are encouraged and supported by many of the public, who are as little able as the doctors to tear themselves away from the all-engrossing idea, that—whatever ails them—they are BILIOUS, and must, as a necessary consequence, have something the matter with their unfortunate LIVERS;—a prejudice so firmly rooted, as only to be equalled by the greater one, that *nothing but calomel or blue-pill can touch the liver.* This is the great cant-phrase, echoed from the mansion to the cottage,—one that not only conceals a vast amount of ignorance, but offers a cloak to the thoughtless practitioner, who thus at once hides his own lack of intelligence and flatters his patients' self-conceit. No nation in the world takes so much medicine as the English,—and none are more habitual slaves thereto. A reaction, however, having taken place, the community have been thrown into the opposite extreme of Homœopathy, as a loop-hole of escape.

Were this not so serious a subject, it would resolve itself into one of the richest comedies,—"A Comedy of Errors." I would, therefore, earnestly warn my readers against falling into habitual drugging on the one hand,—and doing nothing, or next to nothing, on the other;—and I advise them, if they really require physic, to use such medicines only, or such combinations of them, as will act as correctives and promoters of natural actions.

# CHAPTER XXV.

## HEALTH: ITS CONDITIONS AND ACTS.

Two conditions necessary to normal health: physical *bodily* health, and well-balanced *mental* health, their combination rendering life happy, pleasurable, and healthful—Nature's constant effort to maintain health, and restore it, when lost—Constant mutual dependence of body and mind—Three great duties requisite to maintain and restore general health—Social health, its principles and workings—Commercial health and disease viewed by analogy with those of individual man—Panics, periodical epidemics—Incurable social maladies considered—Occupation necessary to health—Importance of the social virtues, such as moral self-control and good temper—Training of the temper in early life—Remarks on spoiled children—Influence of food on national character—Meat-diet; broiled and roasted preferable to boiled meats; and why—Effects of usage—Variety of food as necessary for the body, as variety of occupation to the mind—Importance of regular exercise, fresh air, good lodgment and cleanliness to health—Concluding remarks on the *acts* of health.

The nations of classical antiquity viewed life conditionally,—regarding it, not as valuable in itself, unless combined with health; and hence one of their favourite sayings,—"*Non est vivere sed valere vita.*" As life was seen to consist in a combination of mind and body, what, reasoned they, could be the health of the one without that of the other? And hence came the adage, "*Mens sana in corpore sano:*" "A sound mind in a sound body." Even these two propositions, however, did not wholly satisfy their notion of the philosophy of living;—for what, contended they, is it to live with bodily and mental health, without the enjoyment of them? "*Quid est vivere, nisi fruaris vitâ?*"

With the verdict of antiquity, as respects these three grand propositions, I perfectly agree; and in considering health generally, I would point to three important subjects for consideration;—*first*, that the body should be in its normal condition—that of health—every organ duly performing its separate function in harmony with the rest,—*secondly*, that the mind, connected with the body by nervous matter working in minute channels wonderfully formed, should by its healthy action produce a correct appreciation of instinct, thought, and reason,—in order, *thirdly*, that the two together may form an undivided and properly balanced whole, directing human thoughts, human actions, human sentiments, in so harmonious a course, as to cause by their combination a life of happy, pleasurable, and healthful enjoyment.

Perfect health of body and mind, with all that relates to the appropriation of food for their sustenance, depends on the vital elements being maintained at a certain chemical balance, which in its constant changes directs and governs a fixed amount of very regularly distributed heat;—and these several conditions Nature is always striving to maintain in their fullest integrity. Her efforts, indeed, to this end, are of the most exalted and noble character,—considering the constant transformation which all structures are undergoing during the process of waste and repair. A thousand laboratories are always contributing their results to keep up the human body as a whole, all working without any interference from, or consciousness of, the being within whom they work; and well, indeed, is it for him, that he has no controlling power over them; for, if he had, he would assuredly soon spoil the harmony existing throughout. As it is, however, all he has to do is—to satisfy, as best he can, the demands of hunger and thirst, the supply of which forms his leading physical enjoyment,—and next, to engage in a proper course of exercise, according to his power and capacity, in order to circulate more freely the vital fluids, and promote the proper digestion and full enjoyment of food. It is worthy of remark, however, that the body can be maintained in health, either with or without much exercise, being capable at need of enduring the greatest torpor, as well as the most powerful exertions, and simply requiring in either case to be correspondingly supported and sustained.

As regards physical health, so long as we are conscious of no ache, or pain, or failure of power, it may be considered, that the organs and their functional actions are in a normal and healthy state;—nay, further, in spite of all the indulgences man allows himself, all the excesses he may commit, all the violences he may endure either from accident or self-imposition, if no ill effects follow, he still remains in health. In fact, Nature is always striving within him to effect this great end, which in general she accomplishes against all opposition from man himself; nor will she be put out of her way in keeping up a healthy standard, if she can possibly prevent it. Whether overtasked or undertasked, be it externally or internally, she arranges for everything, and persists to the very last in maintaining her high position. Should health again from any cause become lost or impaired, she it is that restores it. If medicine or regimen be resorted to for restoring the balance, she assists them—if they be correct; whereas, if wrong, she strives in spite of all opposition to set things right in her own beautiful way; using diet both as medicine and food; correcting, directing, aiding the judgment of man in their several uses, and in all respects acting with simplicity and truth.

All, therefore, that man has to do—is to study in Nature's school, to watch her operations, and to deduce therefrom a few brief rules for the preservation of his health. To exist without health is opposed to all natural laws: and, as there are many links to this chain, so some of them are strengthened to make up for the weakness or decay of others, which would endanger the whole machine. To sustain, therefore, and keep up all the organs and properties of the body in due and healthful harmony is Nature's most important duty;—in performing which, she amends rather than reproves, when offences are committed against her.

As regards the body, it seems most manageable when directed by instinct alone. This is exemplified in the brute creation to a marvellous extent; and when man is, owing to inscrutable causes, reduced to their level, as we see in the brute man or lunatic, the physical powers are of course alone engaged in the struggle for health. Man, however, possesses another and distinctive element, namely, the *mind;*—which portion of his being is, when diseased, constantly working to upset not only itself, but its comrade—the body. When the mind, however, is in a perfectly sound state and combined also with a sound body, a rare and beautiful union is presented of all the powers and perfections that Nature can possibly collect into one homogeneous whole. As for the body, it may by the commonest care and commonest intelligence be kept healthy, if the mind would but allow it. The latter, however, is always interfering, always opposing, always suggesting something to upset both. Yet, when they act in unison, such mutual dependence is there between the two, that the greatest perfection and harmony of movement is the result; while on the other hand any trespass, any fault in either, induces the greatest discord. Then comes the struggle; the two contend one against the other, giving rise to derangements that last a longer or shorter time, till at length Nature steps in to restore the harmony that had been lost.

Many of these feuds, again, result from and are connected with the third proposition with which I set out, "*What is life without the enjoyment of it?*" Life sets to work with health and vigour both of body and mind, in order properly to enjoy this twofold existence; and how this is done, every man's experience can tell. This tale of life, however, resolves itself into three stages or departments:—*first*, the great duty which the various members of the community, as dependent atoms, owe to each other commercially, of fulfilling all mutual offices and obligations in a healthy way; *secondly*, that which has to contend with adverse and mutually opposing actions requiring correction by certain institutions or moral laws framed for the purpose of restoring a healthy standard; and *thirdly*, that which concerns the regulation of every man's mind with a view to his own happiness, and the due maintenance of his bodily fabric by proper diet, regimen, and employment.

Regarding, then, the whole community as one body, and comparing the numerous members of which it is composed to so many organs and functions of the individual being,—any infringement or neglect of duty by one brings-on a given amount of disease, just as the failure of any bodily organ would in the body. So true, indeed, is all this, and so much a fixed law,—that in every distinct community of man, as well also as throughout all creation, animal or vegetable, and in the elements in and about which they move, proof is hereby furnished of the existence of One Great, First Governing Cause;—nor can there exist any true health, or be any stronger indication of disease in the mind, than where a man ventures to question this great leading truth.

Setting out with the proposition, that the real enjoyment of life results in its ultimate happiness, and that health in every phase of it is its true foundation, we must consider that it is by a wise law man is made dependent on his fellow-man for much of this; nor could anything but inscrutable wisdom have devised a plan so admirably perfect. From these mutual dependencies, moreover, man cannot separate himself. What he gives, he gives as a free act; and this is not confined to pecuniary acts, but includes all such social actions and habits, as affection, friendship, help in need and sickness,—in short, succour of whatever kind. His actions, too, in buying, selling, bartering, lending, or exchanging in any way for a consideration, all show his punctual fulfilment of social duty. In all such cases, I say, there is health; whereas, on the other hand, if there be any departure from the path of duty, either in the non-fulfilment of contracts or otherwise, there is disease. Any remedial action, therefore, of these latter may be termed functional or curative; whereas unhealthy speculations, hazardous schemes, trading without capital, gambling, fraud, forgery, theft, and acts of violence to person or property, are organic diseases, often incurable, and in no way else removable, than by the isolation or cutting off from the social body of the offending member, to prevent the contagion of his evil influence on the rest.

Money, in the commercial dealings between man and man, is like the blood to the body, which—when irregularly distributed, either in insufficient or excessive quantities, produces either diminished and depressed vital actions, or fevers and plethoras,—both equally deserving the name of disease. Money, moreover, is aided in the commercial fabric by its substitute—credit; and as respects either, deficiency and excess produce analogous diseases, while the maintenance of a due balance in either is an indication of health. Individual disorders of a commercial nature may affect only small circles of the social family;—but occasionally, and at certain epochs, we find commercial epidemics producing general panics, paralysing trade, and spreading a fatally contagious influence, though not without their benefit in giving a healthier tone in the end to the commercial body. The latter, however, always continues young, owing to the natural decay of old or diseased members, and its constant renewal by the substitution of new and vigorous ones in their place;—and thus, precisely as with individual men successions of unwise or thoughtless acts raise disease to a climax,—so, in each succeeding commercial epoch, recurring almost decennially, unwise and thoughtless acts raise this kind of disease to a climax, producing the most widely-spread and calamitous results.

The causes of these social maladies will be apparent on a very slight examination. They are found to be the result of persons trading beyond their means, or power of sustaining their commercial self-dependence, relying alone on the continual influx of floating capital, or nutriment, whether in the shape of cash or credit, instead of what they should have within themselves, or in hand, independently thereof;—and the consequence is, that, as soon as credit becomes shaken, the commercial fabric is suddenly starved, owing to the stoppage of its precarious supplies, and bankruptcy ensues. In fact, as in the individual, so in the social body, a reserved capital is always necessary. Those, who have been careful to secure it, survive the crash; while those, on the other hand, who have it not, languish and die of exhaustion,—that is, become commercially defunct. Every trading house, therefore, should have powers and resources in reserve against exigencies; by which means it becomes as self-dependent as the individual body when in health.

The power of expansion, so far as may be consistent with health, depends on certain appropriating powers; and the greater these are relatively to their self-dependence, the greater will their mercantile bulk and importance become. Houses established on a basis like this cannot be suddenly starved by losses, or languish for lack of floating aliment. They have their reserve to fall back on; and a little check, so far from injuring, actually does them good, by inciting them to exercise caution. It is worthy of remark, also, that excess of credit, and too great facilities for borrowing or obtaining capital, are the very ruin of self-dependence, and furnish only false aliment to commercial life. Neither, therefore, should ever be granted beyond a just and legitimate extent, and then only on the surest grounds; for if they are, they only induce a false system of trading, which having only at best an artificial existence, languishes and dies under the first attack, owing to its want of self-dependence. Thus far, then, the health and disease of commercial bodies appear to be regulated by the same laws as health and disease in the bodies of individual men.

Descending a step lower in the social scale, to private consumers, who show the presence of disease by living beyond their means, depending on the facility of getting credit to supply their necessities, while spending their ready money or capital on pleasures and luxuries,—these persons are morbidly induced to borrow,—in order to supply their lack of self-dependence. Such as these have recourse to loans at extravagant interest, or involve themselves in mortgages beyond all power of redemption, to support an unreal, artificial prosperity. Acts like these only aggravate disease, and are totally incompatible with social health;—in short, they sooner or later bring on misery and ruin.

As respects the effect of such transactions and their attendant anxieties and annoyances on the health of individuals, it may be readily admitted that, so long as the bodily machine acts healthily, they only prove additional incentives to a healthy, vigorous condition of mind:—but, let affairs once go fatally wrong, the thought of them will keep the mental organs in a more or less disturbed, agitated, and unhealthy state, causing the body as well, with all its organs, functions, and secretions, to become disordered, and morbidly affected. In short, troubles, disappointments, and losses, all contribute to upset the balance of general health. There are some, on the other hand, whom losses affect to a less degree and less injuriously than gains;—for the former act as stimulants to greater exertions, inspire caution and forethought, and promote generally healthy actions; while gains often unseat the reason, and plunge the fortunate speculator into heedless extravagance and ultimate ruin. As a rule, however, the opposite results may be expected,—health, vigour, and happiness, from commercial success, and the opposite from its failure. In fact, steady industry, patient endurance of toil, and full occupation both for the body and mind in every commercial and social pursuit—every honest dealing of whatever kind between man and man—tend to maintain the general health. Thus, every conceivable act, that brings man in contact with man, as mutually dependent on each other in all the gradations of rank and station, if pursued and carried out with justice, honour, and principle, conduces to a healthy condition of society.

The above remarks apply to the first departures from a normal or healthy condition of the mutual intercourse between man and man. We are next to consider the more debased and vicious propensities of human nature, or, in other words, its moral diseases, as exhibited in idleness and immorality, and leading to the worst of sins and crimes,—as lying, stealing, acts of violence, and murder; for all of which the law provides moral and correcting remedies. If capable of cure, the disease is then only functional; but when it becomes chronic—that is, confirmed into habit—it may then be termed *organic*, and is utterly incurable:—and in this latter case the diseased atom or member must at once be separated from the rest of the body corporate, nor suffered any longer to attach itself to the healthy structure. In short, it must be put aside, or incarcerated so long as it may exist, to prevent the contagion of crime, or else it must be cut out of existence summarily, as a terrible example to society. Indeed, under no circumstances must an atom like this be ever allowed free contact with healthy ones, but must be rigorously dealt with by the laws that society has established for its protection. Diseases of this class, let me add, often lead to serious results, from impulsive actions, even among those who are in a healthy state; and it will hence be distinctly seen, how much the mind of man is concerned in the attainment of a moral standard of health.

The sound mind, I repeat, must unite with the sound body in planning and carrying out all that is good and useful; or else life will be without health. Circumstances, it is true, may occur, where the body is healthy and the mind unhealthy, and *vice versâ;*—but where both are sound, it naturally follows, if they are to remain so, that all pursuits must be arranged to induce such continuance. No mind, therefore, should be allowed to remain unemployed. The occupation of a certain number of hours every day in wholesome labour, trade, commerce, or professional pursuits, is requisite to mental health; while idleness, lack of thought, and want of occupation, on the other hand, invariably conduce to its disease. The man even of independent means, and without any stated or obligatory engagements, will—if he regards his health—select some useful pursuit, some healthful engrossing occupation to employ his mind; or else it will become weak, languid, and dissatisfied from mere want of exertion. Further than this, I would observe, that, whatever a man's regular pursuit or calling may be that enables him to provide for the wants of himself and family, his mind should have other healthful occupation and amusement, be constantly under cultivation, and ready to receive, as well as impart to others, information, knowledge, and entertainment; because variety of occupation is as necessary to the health of the mind, as variety of food is to the body. Self-dependence, then, in this, combined with a due amount of dependence on others, constitutes one of our great social obligations.

In this inquiry, however, we must by no means keep out of sight an important principle, the operation of which, for good or evil, greatly concerns the health and happiness both of society and individual men; I mean the state of the temper, and the amount of moral control exercised over it, as well also as the social qualities to be acquired that may render each one pleasing, courteous, and void of offence towards his neighbours. Of course tempers differ as much as conduct and character;

but yet with all of them, cultivation can do much, very much towards their improvement. As regards temper in particular, I cannot help remarking, how much general happiness is caused by the amiable, placid, and obliging disposition of those who form the social circle, and how much of this happy temper results from a well-directed education in early life. There are many, no doubt, so self-willed and untractable, that no training in the world would ever render them other than morose, surly, selfish, and litigious. Yet, in a far greater number of cases, if these unhappy traits of character be observed and met by timely correction, before they have become habitual, they may be to a great extent removed. Whenever, therefore, I see persons in youth, middle life, or even later, exhibiting such unamiable tempers, I at once conclude that they were not properly trained in childhood, but spoiled and over-indulged by their parents or guardians. The bad passions of our nature very early show themselves; and where parents, either through unwillingness to inflict pain or chariness of their own trouble, omit or neglect making their children obedient, and so let them have or do whatever their inclinations may desire, they become imperious and exacting in their wishes—fractious, discontented, and rebellious, whenever their will is opposed;—and all this, when it has one become a fixed habit, remains in the character of the future man.

In all such cases, I regret to say, the worst possible argument is used by parents in their own justification—namely, that when these children are older they will know better, and grow out of these naughty tempers; but I maintain they never will, and never do. Those, too, who thus permit their unfortunate offspring to have their own headstrong, unreasonable way in early childhood, live to find their children showing them no more love, deference, or consideration than any one else, even the greatest stranger with whom they come in contact. Parents, in fact, exhibit examples of moral disease themselves, who neglect properly to train and correct their children's tempers in infancy and early childhood.

It is a rule almost without exception, that the best-trained children in early life prove the most dutiful, affectionate, and respectful sons and daughters in after years. As respects the mode of training, however, this must be regulated by circumstances; some requiring only the mildest treatment, others firmness, and others, again, positive severity, to make them follow the right path;—nor can a right course of training be selected without some power of discriminating character. Whenever this has been pursued, the happiest results will follow, and the civil, obliging, modest, good-tempered child will become a comfort to all about him, and an ornament to the social circle. As for spoiled and wayward children, on the other hand, they are almost invariably distinguished in after-life by selfishness and want of consideration for the feelings, welfare, and happiness of others—it mattering but little to them how wretched, poor, and unhappy others may be, so long as they themselves are pleased, and have their every wish gratified. They bear about them the germinated seed of an ill-governed, unrestrained childhood. This disease in parents, then, of a truth requires sharp checking—much more, I fear, than it has yet met;—for, going as I do into the recesses of the domestic homes, I find a want of parental control in family circles sadly on the increase; nor should I be properly discharging my duty, if I failed to direct my readers' attention to this important point. It will hence be seen, then, that correction is as necessary as aliment to maintain the sound mind in the sound body—both being requisite to produce human happiness.

From what has been before observed, it will be perceived that a certain hypothesis or theory of health has been established; and it may be thence inferred, that the very act of living entails a certain waste, or wear and tear, which sustenance is required to repair. In this way all living creatures—whether man himself, the beasts of the field and forest, the birds of the air, the fishes in river and sea, or the numberless genera and species of the vegetable world—nay, even the elements of the very atmosphere itself, are undergoing momentary transitions and metamorphoses; and as health is the grand desideratum with respect to all, some universal standard must be fixed and agreed on. In order, then, to provide for this waste and to establish some given law for diet, with a view to promote this end, we must have some principle to start from; because without this we should be reasoning in a circle, and all would end in the simple, jejune conclusion, that varieties of meat and vegetables are necessary only for the sake of change, without any reference as to the mode of their preparation.

I have elsewhere spoken of the food of nations, as influencing their character; and I may here add, that geographical position contributes also very largely to this end, because atmospheric influences are thereby brought into operation. There can be little doubt, moreover, that the great and constantly increasing intercommunication now carried on between the all but innumerable and ever-varying types of the human family in every part of the known world tends to beneficial results, as regards the sources of nutriment and the various modes of treating the ingesta used by man;—nay, further, where there has been no progressive improvement in these respects, nations and communities have remained for generations, and even centuries on centuries, in a stationary and non-advancing state. It is only fair to observe, however, that much allowance must be made for usage; for this circumstance demands attention no less than the above.

Combined health of body and mind depends greatly on the preparation of the food eaten by man; and it will depend mainly on the climate, whether the balance of quantity be in favour of animal or vegetable food. Here again, no doubt, habit and usage have much to do with the matter; for at no greater distance than London and Paris, we find the denizen of the former city rejoicing in his rump-steaks, roast-beef, and porter, and despising his French neighbour's food, as meagre, thin, and unsatisfying; though when he visits Paris, he ere long falls into the new mode of living, because it suits his body in that climate. The same happens to the true Parisian, who has been accustomed to soups, stews, made-dishes, and thin wines; when he comes first to London, he wonders at the vast consumption of half-raw flesh and heavy beer:—yet, after a short residence with brother Bull, he gradually conforms to his habits;—for, were he not to do so, he would soon feel exhausted.

The great question, in fact, with respect to food, in whatever climate it be taken, is—how the due predominance of acid and vitalising elements is to be kept up, so as to maintain the proper balance of power, and provide a certain self-dependent capital in the body to make up from time to time for the exhaustion which it suffers from atmospheric influence and general waste. In this climate, generally speaking, solid fresh-cooked meats are most required. Every meal in this case duly absorbs a certain portion of gastric juice, and thus acts on the body as a medicine no less than as a diet. Supposing, then, that the food is not of this wholesome quality, is insufficient in quantity, or else not properly prepared for the purpose of health, certain beneficial characteristics are lost, and others of an opposite nature substituted, that give rise to disease.

The main points, then, to be attended to in great flesh-eating communities are—that the meat-diet shall be principally *roasted*, *broiled*, or *baked*;—for the self-generating, self-dependent powers not only require this, but are better kept up by flesh thus prepared, inasmuch as in its last stage of digestion it leaves in the stomach a less amount of acidity, and at the same time gives greater support to the bodily powers in the ultimate result of nutrition,—including also healthier secretions to meet the same substances again when hunger calls for another meal. Now, with respect to *boiled* or *stewed* meats, on the other hand, the less frequently they are taken the better; because in the last acts of digestion they leave more acid in the system;—so that any long continuance therein has a gradually weakening influence, rendering the body less and less capable of resisting the waste, and wear and tear to which it is subject.

These truths are distinctly illustrated by two important facts, to which I must now call attention. The *first* of these is,—that every meal should indicate the elasticity and health of the system by the cleaning of the tongue after each. Now this is pretty constantly the case, when broiled or roast meats are mostly taken; whereas, if the use of boiled or stewed meats predominates, this does not occur to the same extent. If, in the latter case, too, disease should arise, the body has less power to throw off and resist it,—so that it makes deeper inroads. Neither, if we consider the matter, can it be well otherwise;—for the system, by receiving less nutriment, loses day by day its powers of resistance:—in fact, there can be no doubt that any class, however favoured, will present a greater per-centage of disease and death under a predominance of boiled or stewed diet, than even a less favoured class under a diet of roast, broiled, or baked meats. The *second* fact to which I would call attention, is national usage, wherever an opportunity occurs for selection. In England, I have no hesitation in saying that every one, generally speaking, takes at least twenty-five dinners of roasted, baked, or broiled meats for one of boiled or stewed,—always supposing that only one dish or joint is at table; so that, taking all the year round, the former bear to the latter the proportion of three hundred and fifty to only fifteen! This statement would be incredible, were it not known by persons well capable of judging the fact, that boiled meats are but little eaten in English families in comparison with those that are roasted, broiled, or baked. Usage, then, irrespectively of any philosophy, has abundantly proved the truth of this rule.

Whenever, therefore, any public establishment or institution provides a dietary at variance with the two principles just laid down, we are right in saying that it errs against philosophy and the laws of health, as well also as against the usage which the members themselves, as individuals, adopt for their own support and personal health. It is unnecessary to particularise instances;—but it is equally unaccountable, as well as most painful to observe, with what perversity of reason, what obstinate fondness for error, what total absence of all care for consequences, and in spite of frequent remonstrances and exposures, certain departments act in this respect directly at variance with the acknowledged and voluntary usage of the community when left to its own choice. A blind routine leads to the worst results.

The very laws of health, I repeat, require a predominance of roast or alkaline diet;—for I have already shown that eighty or ninety per cent. of all the maladies that come before the physician are ultra-acid or congested states of the system. Nature, therefore, points out the remedy in an alkaline diet; and this is the reason why we find free communities of poor people maintaining themselves in health and vigour. What is yet more important to observe,—bodies of men fed on boiled diets fly to alcoholic beverages; for these tend to supply the debilitated functions with a power that has been impaired by persistence in an unphilosophical diet;—in fact, they could scarcely exist without such indulgence.

Diet, therefore, not only as regards the choice of meats, but the mode of their preparation, is always to be viewed as bearing a close and important relation to health. Yet this is not all. Disease, too, may be traced to classes of diet, whether eaten or drunk; nor have I the least hesitation in saying, that persons using roast or baked meats scarcely require alcoholic stimulants at all; whereas those who take an excess of boiled or stewed meats actually need those pernicious drinks, and cannot, in fact, long exist without them, because they act as their natural antidotes to disease. Usage, moreover, is second nature: and it would be as difficult to reason the community out of eating wholesome roast or broiled meat, as it would be to reason public departments out of the folly of a persistent boiled-meat diet,—aye, even though thousands of lives be yearly sacrificed on the altars of disease and death owing to the practice.

Variety of food for the body is as desirable as variety of occupation for the mind,—inasmuch as health cannot exist without it;—neither can it be denied that a small per-centage of boiled meats may be actually beneficial to the system in the course of the year. If we rise a few steps in the social scale above those who can afford only a single joint or dish, we shall see how beautifully usage supplies the board of the wealthy. We there find, that boiled, stewed, steamed, and elegantly-made dishes appear in their due places, but are corrected, nevertheless, by roasted and broiled meat, poultry and game, according to the season. Now, watch these classes when at their meals, as a silent observer—stand as a buffetier daily at their tables;—

and you will soon see from what kinds of meats they get their greatest amount of healthy elements, and whence arise their acidities and thousand little ailments. They obey, in fact, from habit, the rules of diet that I have just laid down; and where they depart from them for any length of time, they err.

All classes of vegetables and fruits again are necessary in a mixed diet, and are taken according to their seasons of ripeness,—because they help to purify the blood. The beverages, also, of any particular climate tend to furnish the system with a power that it lacks; and any injury they may inflict results most assuredly from their abuse, not their use. Viewing the subject generally, we may conclude, that a healthy life, which may be defined as a "sound mind in a sound body," is brought into and maintained in its true balance more from usage than philosophy, as it is, indeed, with all human affairs whatsoever. Nevertheless, usage in every climate requires correction; and it is of vital importance, when persons change their habitations, that they should adopt a mode of living consistent with the climate to which they remove.

The combined health of mind and body, moreover, requires pretty regular bodily exercise suited in amount to the physical powers, and when at all possible in a good, bracing atmosphere. Fresh, vital air, indeed, whether out of doors or in the house, is an essential requisite to health;—and I have no hesitation in saying that, where all other things are alike, those enjoy the best health and for the longest period, who live in airy neighbourhoods, and spacious, well-ventilated houses and apartments.

The author cannot but express the pain with which he has seen the large per-centage of mortality in the British army,—as shown in the recently published Report of the Commission appointed by the Government to inquire into the Health of Soldiers. This, however, will always continue to be the case, so long as measures are ignored, or not enforced, for the discovery of any diseases latent or lurking in the system, and preventive measures are neglected or deemed of no account. It must ever be borne in mind, that—as a general principle—the soldier never declares himself an invalid; and, unless he is found incapable of duty, any latent disease from which he may be labouring, is suffered to pass undiscovered, simply because the surgeon depends on the man's own report, not on the evidence of his own eyes and his professional experience. Many cases, too, may come before the surgeon, which he may deem trivial, but which might lead to serious or fatal results; because he is ever too apt not to think enough of small matters, and so pass them over unnoticed.

Good air, proper lodgement, and due attention to cleanliness are most important points to be attended to; but as I have treated at large elsewhere on these several subjects, it is simply necessary that I call attention to them, as essential requisites for health.

Now, were Glossology perfectly understood and conscientiously practised, the army-surgeon would require no information from the men;—as he would at once see the exact state of the system in every one of his patients, and the tongue would point out the simple remedy to be adopted for merely incipient ailments, without the need of sending the man into hospital at all. Such timely precaution would not only save many hospital cases, and a very large proportion of the mortality, but would go far to prevent the actual presence of disease in our different regiments. The author, in fact, has no hesitation in saying, that he would prevent, or place it in the power of the surgeons to prevent, fully fifty per cent. of the mortality among our troops in a few months, by simple instruction in glossological indices; but so long as routine and certain received opinions hedge about the practice of medicine, and the profession ignore Glossology, as a system and diagnostic of disease, so long will there be an absence of everything like preventive medicine,—which should form the true basis of all medical science.

After all, the enjoyment of life mainly depends on the two first great propositions, with which this chapter set out;—and the idea of health thus considered can be realised to its fullest extent, both rationally and elegantly as regards the mind, actively and functionally as regards the body,—both of these being inseparably linked together. According, then, as the powers of either predominate, so we obtain a different result,—

the mind of some being that part which is most active and most developed, while in others we find the health of the body attain extraordinary vigour and power.

Such, then, are the *conditions* of health. As regards its *acts*, I scarcely need to mention those. They are as the sands on the sea-shore,—neither to be counted, weighed, nor measured; and wherever we see them, they are rational and good. Individuals, communities, and nations have their peculiarities stamped on them by their acts, customs, religion, and laws. Generally speaking, however, to preserve health is neither to over-indulge the body nor treat it too rigorously, but to keep it in a state of activity and vigour, so as to be fit for all the duties of life. Sloth and negligence are incompatible with either mental or bodily health; for with regard to the first, there is insufficient nourishment for the mind, and a neglect of this affects its comrade the body as well; while low, inadequate supplies of diet, in quality, quantity, and preparation, want of proper exercise and cleanliness, and a vitiated atmosphere, weaken the body, and through that—the mind.

Honest industry and constant occupation are Nature's true and wholesome stimulants, and cheerfulness always follows in their train. Moreover, even when cares and troubles darken the horizon of our existence, whether induced by our own follies or weak judgments, or brought on us by the error or wickedness of others, a sound mind, accompanied by the reflection of having done what is right to our very utmost, enables us to bear them with calmness and resignation.

The preceding pages, it is hoped, will have abundantly shown, how a departure from health leads to disease in its manifold and various gradations, and how simple in reality is the first treatment of them with the view of restoring as well as of maintaining a healthy standard.

# RECAPITULATORY REMARKS

AND

# GENERAL CONCLUSIONS.

Those who introduce innovations have but too often to complain of the world's opposition. The reason of this is, that men in general cling with tenacity to commonly received opinions, whether they serve their purposes well or ill, as if they were fixed principles, and act thereon with more or less self-satisfaction. Any one, therefore, who doubts established authority and generally received doctrines, or attempts to upset them, unsettles the public mind, which deems no abuse too harsh, no knock too heavy for the head of any unfortunate wight who ventures rashly and unadvisedly to disturb such marvellous unanimity. It is thus that I reason with myself for my own presumption in writing what I have, and cannot but expect the usual reward.

Nevertheless, I must observe in my own justification, that as a student in medicine, I looked for reason and philosophy, but found none; neither have any of my predecessors or contemporaries given me any solution for my doubts. I see the practice of medicine carried on by the strangest methods of suppositions, guesses, and inferences, and remedial agents administered solely on presumed authority for their use; while the constant changes of opinion thereon indicate that a great want of solid philosophy prevails, thereby opening a door for every charlatan to enter. Nothing, indeed, seems ever fixed or certain. As if to favour this state of unfixedness, moreover, the public has, as it were by common consent, left this branch of art to a body of men, whom it is content to suppose well acquainted with what they do, simply because they profess to be so,—never troubling itself to make any further inquiry, or even allow the existence of a doubt as to their competence. This, then, being a joint understanding, both the doctors and the public stand in a false position towards each other; and as the latter, through ignorance and predisposition not to learn, can exercise no correcting influence, all the errors and short-comings of the former, as well as everything they do, are enveloped in mystery.

How poor and unsatisfying is the information which anxious friends and relatives, or even the patients themselves, can at any time obtain from their medical attendants! Now, it is one of the inherent peculiarities of the human mind to impart knowledge; and, generally speaking, in whatever sphere of life any one is placed, he feels himself complimented by being asked for any information, and gives it instinctively and directly: in fact, he that is questioned seems well pleased to answer,—it being a something which he gives cheerfully and without grudging, especially in all scientific and literary matters. Yet, all this considered, what information do any obtain from the faculty, as to the cause or nature of any of their ailments? If the medical profession can impart it, why so much mystery? Medicine is not conjuration, magic, astrology, or the casting of nativities. Why should a doctor, then, be necessarily a mysterious person? To what does all this lead, and what can be the object to be gained? If medical learning be merely the pedantic parade of some occult knowledge that lacks the simplicity of truth, it is, in plain language, only something illusory and a fraud, which the public themselves encourage and protect by ignoring plain, simple truth, and preferring mystery from blind credulity and wilful ignorance.

In opposition to both these parties, I wish to knock down all this mystery, and to show, that it is equally absurd and unnecessary; I wish, in short, to prove that there must be a point, a normal condition, from which disease starts and to which health returns. For these reasons I have instituted an inquiry into, and taken an account of, all the chemical properties of matter and the current elements of the body; the result being the elimination of a broad fact, on which may be founded an hypothesis of the laws, which sustain health at its normal standard,—which gradually produce disease,—and which again reduce and overcome that disease, restoring the body to its original condition of health.

As a recapitulation of what has been written in the preceding pages, I now desire to call the reader's attention to the following *general conclusions.*

I. A certain predominance of the acid principle is necessary to sustain a normal standard of health. Any excess of that principle causes a departure therefrom, and produces acid or congestive disorders; but, when the predominance of acid ceases to exist, then the alkaline disorders, or fevers and inflammations, are more or less present.

II. A bitter element in the system is an essential thereto; and where it is constantly and regularly present, fevers and feverish symptoms do not exist; whereas, if it be deficient, they are liable to occur, and when absent altogether, the system becomes predisposed to inflammations and fevers.

III. The human system has its distinct acid or congestive disorders, which are to be treated with *alkaline remedies* and stimulating expectorants; and when these have reached their highest point, if they are not relieved by art, Nature effectually does so; the result being, that the alkaline diseases, such as fevers and inflammations, supervene, which in their turn are relieved by *acid medicines* and opiates. In both the acid and alkaline modes of treatment, the bitter elements can be with equal facility combined.

IV. In certain conditions of the body the acid and alkaline actions may co-exist; as some parts or organs may be in a congestive,—others in an inflammatory state.

V. Both medicines and diets admit of a threefold division, into acid, alkaline, and neutral,—suitable respectively to their opposites in disease.

VI. The tongue is of paramount importance, as a criterion or index, pointing out—first the state of the system, and next the proper remedy to be used; thus constituting itself, when properly observed, a sure guide for the avoidance of the legion of errors now made, both as to diagnosis and treatment, owing to the absence of any fixed principle as regards the use of either.

VII. The tongue is capable of being mapped out into compartments, that illustrate, by certain appearances on each, the health or disease of the various organs thus severally apportioned, or bearing relation thereto. It is beyond all question a great step in advance, to be able to reveal at a glance the organ of the body most affected in disease, as well as the general condition of the body, as a whole. This principle is so new, that nothing at all like it will be found recorded in any medical works whatever, from the foundation of medicine to the present day. I am well aware, indeed, that the tongue has been looked at from time immemorial; but its warnings have been despised and ignored, and its evidence considered fallacious, rather than otherwise.

VIII. Disease is the exception, not the rule of the bodily condition; and though arbitrary comparisons are herein made of health and disease, as well also as of the relative diseases of the sexes, yet they are sufficient to show the providence of Nature in upholding health.

IX. Quackery and amateur-physicking on false and supposititious data, instead of fixed and definite principles, are sources of much evil, because they involve the taking of pernicious drugs, which only complicate and multiply the natural disorders. Of this kind are the mercurials and aperients, largely taken by all classes on the falsest plea that ever was set up by man, to bring about and aggravate his own bodily miseries and troubles, namely, that the LIVER is the great and fundamental cause of all his ailments. Now, the author considers on the contrary, that these eternal *liver complaints*, and the constant recurrence of the hackneyed terms, *bile* and *biliousness*, have had quite a sufficient run in fashionable doctoring; and it is high time that the public were disabused of so great and pernicious an error.

X. The laws of infant-life should be considered in relation to the great principle of self-dependence, which is inherent to the condition of all organic life, commencing from its earliest stages. Nature has for these purposes even before birth made a wise provision by supplying structures (discovered by the author to exist in infants at that early period), which, having once accomplished their destined ends, cease to exist; when the natural vital powers come into action. Aperients, too, are condemned as respects infants, because they operate in removing vital elements from the system. Glossology, in these as well as in adult diseases, points out the simple treatment to be adopted for these equally simple cases.

XI. Fevers and inflammations are simply arranged and classified into arterial or *inflammatory*,—venous and capillary, or *congestive*. They thus exhibit a distinctiveness of character, which is evidenced also by their treatment even on the received authority of the schools without any definite philosophy. This proves, then, that what has empirically been found beneficial, completely accords with the hypothesis laid down by the author. Further, the inflammatory actions of the different membranes and organs are explained, as well as their sympathetic actions, thus showing the necessity for a more natural study of the tongue in these, as in all other, diseases and conditions of the body.

XII. New features are pointed out in the treatment of cholera, diarrhœa, and dysentery. These diseases demand more serious consideration at present than perhaps at any previous time; because the increased number of Europeans, who will in future reside in the tropical climate of India, will make it imperative on the Legislature to institute a further and more searching inquiry into the causes and treatment of these fearful diseases, and not leave them, as hitherto, to the sole consideration of purely medical boards and their red-taped officials. More definite results will then be obtained, and a distinction established between the two forms of cholera laid down by the author,—namely, the *congestive* and *inflammatory*,—clearly distinguished from each other by the appearances of the tongue, and each treated in a diametrically opposite way to the other;—the result being that many valuable lives will thus be saved.

XIII. Attention to the state of the bowels, by keeping them in a more quiescent state, both in fevers and after excessive evacuations, cannot be too forcibly impressed on the minds of all thinking, practical men; because the *chief vitalising elements of the body*, or those on which life and health mostly depend, *are generated in the large intestines.* The treatment of such ailments, then, by mercurials and aperients should be entirely reconsidered, as well as all unnecessary purging by whatever forms of drugs.

XIV. The subject of poisons is largely considered; the great object being to show, that poisons generated in the system itself from morbid conditions of the secretions by a process of electro-chemistry, are analogous to foreign poisons taken into the body, as the symptoms and effects of the two bear a marked resemblance to each other, and both require very similar treatment. Self-generated poisons, viewed in their operations, as cause and effect, may be divided, like diseases, into three classes, Acid, Alkaline, and Neutral, each demanding a remedy of an opposite and antagonising character; and as respects their great exciting causes, we may ascribe them to morbid degeneration in the vital elements of a similar character to those resulting from bad diet, impure air, and the immoderate use of adulterated alcoholic liquors; the last of which leads to demoralisation, disease, and death.

XV. The great variety of eruptions appearing on the skin, leaves no doubt of the wisdom of Nature in thus exerting herself to purge the blood of its poisons; for without this safety-valve, vital organs would more frequently become functionally disturbed, and organic disease be the natural result. Punctures of the flesh by thorns, and bites of insects, reptiles, or beasts, are often analogous in their effects to the poisons produced by sudden morbid actions destroying portions of solid structure, such as wounds and bruises, which become the seats of abscesses, producing foul and purulent discharges for the purpose of freeing and cleansing the decomposed mass.

XVI. Certain headaches have been observed by the author to accompany particular derangements of different portions of the alimentary canal; and hence he has been led to divide the head into distinct sections, corresponding with different parts of the body. This fact, capable of being verified by any unprejudiced observer, is as new to the science of medicine as

Glossology; though the author does not profess to assign the anatomical or physiological causes or laws thereof,—as there are many phenomena besides this which we know to be facts by simple observation, the causes of which, nevertheless, we are wholly unable to explain. Headaches, as herein arranged, offer valuable materials for the diagnosis of disease, and are shown not to proceed entirely from the brain, but from distant nervous sympathies:—indeed, one form only of headache, namely, the temporal headache, indicates the brain itself to be primarily affected.

XVII. In close connexion with the brain, and in proportion to its size and capacity, so the mind becomes developed by proper cultivation and education. Some of its powers, often gifts of Nature, and others *educed* and augmented by education, are separately considered; which leads the author to a general classification of minds, as influenced by professions and callings,—such as the political, clerical, legal, medical, naval, military, and commercial minds; dilating on the peculiar qualities of each, as well also as on that of the pestiferous classes, and the diseased minds of lunatics and idiots. Observations on nerve-action and nerve-disease necessarily follow, with remarks on their symptoms and treatment. All these subjects are carefully treated and rendered intelligible to general readers; as it is important that all persons should, to some extent at least, be acquainted therewith.

XVIII. The structure, functions, and ailments of the distinct organs of sense are considered, as well also as their adjuncts. Thus, sense, motion, instinct, and reason, are all nerve-actions, —more or less voluntary, or else involuntary,—accorded to men and animals as organised beings, and operating under or without the control of the individual, in obedience to certain fixed, natural, and instinctive laws.

XIX. As man is self-dependent as regards his internal economy, he is equally so on his own resources, as derived from his external nature and relations—thus acting on his own authority in many matters, and becoming by turns his own legislator, priest, lawyer, tradesman, artisan, and servant;— nay, occasionally, perforce, even his own doctor and surgeon.

To aid his readers, then, in these latter capacities, the author has introduced much valuable information in his directions for the management of sudden seizures, convulsions, accidents, sprains, dislocations and fractures—cuts, wounds, and lacerations—galls, burns, scalds, and other cases involving some knowledge of practical surgery.

XX. In no cases within the range of private surgery does the want of a principle induce more needless suffering than in the use of hot and cold applications; for error and prejudice on these matters prevail not only among the unlearned, but too commonly also in the more learned, and, as we might suppose, better-informed classes. The correction of these errors and a return to simple philosophy of treatment, are hence especially impressed on the attention of the public; for man has surely quite enough of ordinary sufferings without having them aggravated by false treatment, when a correct one is just as easy of adoption.

XXI. Pregnancy and childbirth are important subjects, not only to the female personally, but to her connecting links—her husband, children, family, and country. The author has reason to believe that, owing to the present artificial state of civilisation, all circumstances relating thereto have been considered too medically and on the principle of disease, rather than in the light of a purely natural act. He, therefore, condemns many current usages, especially too low a dietary, which is highly injudicious at a time when the system requires more than ordinary support;—in fact, many fatal cases may be ascribed to depressed powers from this cause. Again, irregularities and anomalies take place, including also false conceptions occurring at various periods, even down to the full term of pregnancy, all obedient to the laws of natural healthy actions,—and which, as the author has shown, are not affected by retention of the dead ovum in the womb,—all this, too, without putrescent action or injury to the system—one of the marvels of our nature! Miscarriages, premature births, and the varied terms of human pregnancy are also treated on, as well as the duties of suckling, nursing, and weaning—all of them subjects more or less useful and important to be known by intelligent non-medical persons.

XXII. Piles, so frequently the accompaniments of pregnancy and childbirth, are duly considered, and remedial agents suggested for the comfort and relief of persons suffering under so painful and distressing a malady.

XXIII. Varicose, or swelled veins, are also mentioned, as being not unfrequently the causes of sores, ulcers, and wounds in the legs, which embitter life; and cautions are given not to neglect them in their incipient stages.

XXIV. Temperaments are considered, as influencing the character not only of individuals, but nations,—as many of the varieties in both depend on diet. Salt is treated as a civilising agent and a general purifier of the elementary bodily secretions;—in consequence of which, also, it is a prime vital agent, greatly influencing the mind and thoughts, as well as the body. Hence, when the rulers of any nation whatever tax this gift of God to man, they in fact tax His providence, and bring a curse on their own heads; because their subjects, neither knowing nor valuing freedom, and feeling neither love nor true loyalty, are more easily disturbed or excited to rebellions.

XXV. The subject of clothing is not neglected; and severe strictures are made on the errors and false notions engendered by the tyranny of what is termed *fashion*.

XXVI. Cleanliness is enjoined as indispensable to health; while at the same time useful hints are given respecting baths and bathing, whether in fresh, sea, or mineral water;—an especial notice being subjoined on the pernicious practice of using the hot foot-bath.

XXVII. The vital-machine of the human body, so wonderful in its perfection and adaptiveness, offers to all mechanics principles for their guidance. The author has, therefore, taken a mechanical view of the positions of the body in health and disease, whether in repose or during active exertion, and has laid down a few simple rules for guidance. Mechanical surgery and mechanical laws influence not only health but disease, helping to preserve the one and contributing to defeat and cure the other.

XXVIII. Warming and ventilation, being distinct subjects, are herein treated both separately and conjointly; attention being specially drawn to them as the great means of keeping up health by the prevention of diseases arising from impure air. The air heated on the principle of radiation, by various processes that destroy its purity, is here proved to be very different from pure oxygen, or atmospheric air, warmed without destroying its component elements. In the present day the canvassing of this subject has become so popular, and so much error has been propagated on it, even by scientific and professional men, that even now the principles of artificial warming and ventilation are far from being completely settled. Any fresh views, therefore, on these subjects, cannot but prove useful to the public; and the author directs general attention to Atkinson's new apparatus for ventilating and warming rooms and houses by means of a steam-boiler. This so efficiently accomplishes its object, that the purest atmospheric air can be introduced into large buildings at any proper temperature,—a result that has never hitherto been effected by any other means whatever.

XXIX. The duties of the properly-educated nurse and the conduct that constitutes efficient nursing are pointed out;—than which there are few things of more importance, either for the comfort of suffering humanity, or aiding the recovery of the sick. Life being so often dependent on these, the subject cannot be too much dwelt on or instilled into the minds of the general public;—especially, as the author holds, that specific training and education are required to make a really good and efficient nurse.

XXX. As all true medical philosophy is opposed to quackery and charlatanism, the author has endeavoured to set up a standard against them by showing that *medical science has an integral existence;*—for, however much its present low state and deficiencies may be deplored, it is and ever must be triumphant, so long as the intelligent and scientific are labouring for its advancement. This fact is sufficiently indicated by the constant rise and fall, as well as ever-recurring new forms of quackery. It is the duty, therefore, of public writers on medical subjects to expose such follies with all their weak points and deficiencies, as well as to show the injuries likely to arise from these culpable practices.

XXXI. The pursuit of any art, in contradistinction to science, always corresponds with the ideas and knowledge of the person practising such art; so that the most opposite means may be employed to attain the same end. When this principle is pursued in the practice of medicine,—and it has been so in bygone ages, and even at the present day,—it is a mighty fault; nor need there be any wonder, that uncertainty attends any of its results. True science, on the other hand, has a far higher object,—the discovery of the real cause of disease, and the indication of the proper remedy without hesitation or uncertainty as to either. Under such circumstances, all who are called upon to act for this purpose should not only adopt the same views and principles, but act independently, and yet apply the same means without collusion. These marked differences between science and art cannot but strike even the most casual observer; and as the characteristics of the former cannot be traced in medicine, it cannot therefore be justly said to rank higher than an art. The door, therefore, is still open to admit any number of disputants on the art and mystery of medicine;—and this being the case, full advantage is taken to canvass its general benefits and advance new doctrines.

XXXII. The curative actions of drugs are to be considered with relation to their chemical bases, as well as their known peculiar actions. Although these latter are indispensably necessary and require to be thoroughly understood, yet when they are chemically resolved in the great laboratory of the body,—whatever be the result,—they all undergo a combined action, resulting from an election incident to its chemical laws. The peculiar chemical condition of the body, then, influences the acting principles of drugs; for apparently similar conditions are found to render their actions different at different times, and so also when employed on different persons under apparently the same circumstances. This, however, should cause no difficulty; because it only shows the steadiness with which Nature and Natural laws are always acting,—without which no human power or ingenuity could avail, no fixed principles be educed, and apart from which all human reasoning would be vain.

XXXIII. The actual principles of drugs being but few, it follows that only a few are necessary for remedial purposes, exclusive of the numerous combinations of two, three, or more having different acting principles, but similar bases, which effect many important actions.

XXXIV. A proper selection of all necessary drugs has been recommended, accompanied by information as to their qualities and doses, as well also as on the art of prescribing for different diseases, whether congestive or inflammatory,—so that a small medicine-chest with all the more useful preparations may be at the command of every private family;—nor need there be any fear of unpleasant mistakes in their use,—if only due care be taken to follow the author's directions in their administration.

XXXV. Errors and confusions of principle in prescribing medicines are guarded against by the simple study of the tongue;—for it may happen that sudden changes from one class of medicines to another of totally opposite character are required, —all which are indicated by the appearances of the tongue. By these means certain actions, which might affect life, if allowed to continue and progress, are suddenly arrested in their course, and the system restored to its normal condition and healthy balance.

XXXVI. Certain prescriptions are so arranged, as to show the graduated uses of drugs—first singly, and then in combination;—so that any person whatever may, after a little practice, be able to prescribe either one by itself or several together, for the purposes intended, and gradually increase or diminish the dose or doses of each, according to circumstances and the symptoms of the patient. Lastly, the distinct actions of the drugs having been set forth and divided into acid, alkaline, and neutral,—the last of the three may be combined with either of the former; and yet no error can arise from combining acids and alkalis in the same prescription, as they neutralise each other and so become innocuous.

XXXVII. That man should be dependent on his fellow-man, is a wise ordination of Providence. The whole community may be likened to the body itself; each member bearing to his fellow the relation of an organ having certain duties to perform. Hence, a commercial health forms no mean element in considering the life of every man and the peculiar position in which he stands towards his neighbour; while, on the other hand, social maladies arise from the adverse action of one individual upon another. Mental and bodily health, indeed, greatly depend on the moral control of man over himself. It is a wise disposition of Nature, also, that she is always acting within man to prevent disease,—opposing it when present, and bringing back the system to a state of integrity under whatever circumstances. Nevertheless, that peculiar condition of man's civilised state—called his enjoyment of life—leads him into many errors, by which disease is too often engendered and promoted.

XXXVIII. The mind again is shown to influence the body, directly as well as indirectly, for the purpose of promoting health or bringing on disease;—for, while well-regulated habits and temperaments tend to the personal happiness of individuals, as well as of those with whom they come in contact, ill-governed ones, on the other hand, exercise a contrary influence, both on themselves personally as well as on all within their sphere. Hence, early education and correction form an important item in the welfare of all classes:—and it will be seen, that those are the happiest persons in themselves, and promote and disseminate also the greatest happiness among others, who, like them, have been well governed, corrected, and controlled, when young.

XXXIX., and lastly. The food of nations, as well as their occupations and governments greatly conduce to form character, both mental and bodily. A varied diet, on the one hand, and enough of it—at the same time well and properly prepared, and of proper quantity as well as quality—tends to the health of the body; while on the other, a well varied occupation, and food for the mind of adequate quantity and fitting nature, tend to the health of that other great organ. It is important always to consider both these phases of health in all communities of man,—and that, too, with relation to the latitudes, places, and climates he inhabits,—as each should learn and improve of the other, extend his resources, and thus become more enlightened. By these means false and bigoted notions in everything may be amended, and the whole human family, wherever located, be benefited through actual association. Exercise and fresh air are so closely allied to diet for the maintenance of both mental and bodily health, that they are absolutely enjoined; and all countries, or parts of them, where the family of man fix their abode, can, through the exercise of human diligence, be improved from their simple rude state of nature, by disforesting, drainage, and other means. Wherever, then, civilised man finds it necessary to migrate,—should such parts be in their aboriginal condition unsuited to a healthy residence,—they can be made so by science and art. Thus, these very occupations are the source, as well as the great conditions of life and enjoyment. It is then in the widest extension of the human mind, as influenced and improved by education,—in a general attention to the amenities and duties of life, with all the social connexions that bind us to our fellow-men,—and lastly in the cultivation of our relations to that Great Being who made us all for ends and objects of his own,—that the *summum bonum* or greatest happiness of the greatest number or mass consists. In short, every rational act exalts man, while every irrational one debases him. It is evident, moreover, that the condition and acts of man, and every step he takes in the onward progress of the world, are under the distinct guidance of Providence; for though these great matters are deputed but to few men to carry out in every generation, yet each thought, invention, and act are but so many seeds that germinate among the mass; so that, without the ground that gives them their growth, they would never rise into existence. The very increase, therefore, of man in numerical strength is one great cause of the rapid growth of beneficial ideas; nor can anything more clearly illustrate this than the progress made in the sciences and arts, as compared with the advance of the population within the last half-century.

Such, then, is a brief, but comprehensive recapitulation and review of the facts and principles, deductions and conclusions, that have been developed throughout the present volume.

With respect, however, to the simple practice of medicine alone,—which is a superstructure formed on the basis of many correlative sciences, the simplest view, and indeed the only admissible one that can be taken of it is,—that *the physician should be content to assist Nature in her great efforts.* Whenever he ignores or acts contrary to this rule, he errs. Nay,—he even errs in judgment, when he supposes that *he* cures;—he does no such thing. With his present principles, whenever the safety of the patient under his hands has been secured, the physician has, after all, acted only empirically right. The masses of recorded medical cases contain, it is true, many facts and observations of disease;—but the practices therein adopted contain also records of many errors, as well as the most signal violences done to first principles. Medical men too often oppose the great natural actions and laws of life,—thus becoming actually the aiders and abettors of disease. As these records now stand, I say, they are but mixtures of truth with the most pernicious error, and exhibit mere opinions liable at any time to be questioned;—and what is worse, this is constantly done. They are, therefore, unable to stand the test of time or argument, while the observations and labours of succeeding men often make them utterly valueless.

A species of barbarism, I maintain, even now marks the acts of "the Practice of Medicine and Surgery;"—while bigotry and prejudice stand by, applauding. Little as we may believe, and backward as we may be in admitting this state of things, our ignorance alone prevents us from seeing it. We can and do judge past ages pretty freely in all such matters; but with respect to our own follies and misdoings, we are utterly incredulous. Nevertheless, our own practice will one day be similarly viewed; but prejudice is a great institution, and has ever held a powerful influence and been much hugged in every age. To attempt to engraft new schemes on these old records of empiricism is a great delusion; and yet, on the other hand, to cast these entirely aside, with all the observations, researches, and labours of great and gifted men, would be an injustice; for all honour is due to them. Give every labourer, therefore, his meed of praise, and collect his materials;—yet build not upon them as a foundation, but rather construct with them; and for this reason,—that, as foundations they slip and fall, whereas if used only as constructive materials, they can be blended with benefit. Some bold hypothesis, therefore, must be started,—whatever that may be, and by whatever hand laid down. Are modern men, forsooth, so barren of originality through a blind faith in ancient writers, that Sydenham Societies are deemed necessary to disinter and unravel the mummies of mere opinion and observation, and to display empty coffins and sarcophagi to classic nonentities, causing a show of learning to stand in the place of modern construction?

Our colleges and schools of medicine now, in fact, enact the part of the monkeries of old; for while on the one hand they most wisely enjoin the necessary studies of the correlative sciences, they bind the student down, on the other, to their pedantic rules of treatment, and allow him no entrance into the *sancta sanctorum* of their corporate bodies, unless he first subscribe to all their dogmas, and prove himself worthy of being so certificated by the test of examination. Now, in all the sustaining and governing sciences, this would be well;—but, unhappily, what now constitutes the end and aim of them is mere supposition and opinion, resolving itself after all simply into "the Art and Mystery of Medicine." Indeed, as things are at present, every man differs from his neighbour, friend, or brother,—because there is neither principle, order, law, system, nor philosophy in his practice.

Thus, as far as the practice of medicine is concerned, schools and professors are but obstructives;—dogmatism teaches and credulity learns;—philosophy and common-sense are ignored,—and reason is forbidden. Nay, further, the profession, not satisfied with this alone, goes a step further, and seeks extraneous support for its doctrines, by imbuing the public mind with all its own errors duly contained in a number of books on domestic medicine, that closely correspond, in all essential features, with their own more abstruse volumes on the practice of physic;—both merely ringing the changes, and placing the same things constantly before the world, only in a different set of phrases, simply remoulding the same ideas in freshly-constructed sentences,—professing all the time to teach the simple treatment of a thousand specific diseases, which the public know nothing of, in technical language which they cannot comprehend. From all this, however, enough is abstracted to make bad worse, and by such means aggravate the very disease they intended to cure. Thus, then, having been predisposed to such authorities by a certain belief in them inculcated by the profession, they have hitherto helped to sustain and propagate what in fact had no true basis. In time, however, the tide of public opinion turned :—the million, dissatisfied and disappointed, first doubted the legitimate practitioner, and then rushed into the abyss of the greatest charlatanism. Thinking they understood what they formerly believed, they now fly to what they believe in, but can never understand.

The doctrine of specialities, it will be seen, leads to all manner of speculations and inferences. So long, therefore, as conclusions are thus solely regulated, a blind empiricism will exclusively guide the administration of medicine; and the inevitable result will be, as it is now, the disunion of the various individuals in the bodies so practising. Yet these very corporate bodies are always applying to the Legislature to settle what they cannot even settle among themselves,—seeking to put down the practice of unlicensed charlatans, for the purpose simply of securing to themselves the exclusive legislation of their own uncertainties and speculations. The whole medical body, in fact, as at present constituted, is a congeries of disunited atoms constantly repelling one another,—professionally agreeing in nothing,—having little confidence in their own "art and mystery," yet beseeching and craving it continually from the public,—jealous to excess of all others' irregularities and quackeries,—yet wishing withal to keep their own secured under corporate seals, and to get them protected by legislative enactments.

I should not be thus bold in my strictures on the profession, unless I had lived to see great medical dictators, professors, encyclopædists, and journalists fall, after years of stern, unyielding dogmatism into scepticism and unbelief. We look around, and have no difficulty in finding the habitually despotic and uncompromising believer in all medical empiricism, most inconsistently questioning and opposing all new ideas, ignoring Nature and simplicity, and without chart or compass struggling to maintain a false position on prejudice and received authority. Having arrived, however, at a certain point, he casts his eyes back on the past, and having had no principle to rely on in his own practice during a long and laborious life, he turns round with dignified disgust, and, dictator-like, announces his own conclusion, that everything in medicine is visionary, takes a parting look at what he apparently could never arrange in any consecutive manner, and boldly proclaims Nature alone to be trusted, while art is a mere baseless fabric. A second,—after a prosperous career, and with well-filled purse,—questions, on the eve of his immortality, the use of physicians or physic altogether, and leaves, as a bequest to posterity, his opinion, that fevers are not capable of being understood,—but that, after much labour and research, his advice is, that the patient should be amused and imposed on by bread-pills, and such-like useless preparations, sent of course in legitimate pasteboard, while the whole case, meanwhile, should be left entirely to Nature herself. A third, again, boldly departs from all modern medical tradition and usage,—indulging meanwhile in an almost super-monkish revelry in practices that savour very strongly of the superstition of the dark ages. If, then, such quasi-great luminaries as these of our "art and mystery," disport themselves after such fashion, how can we wonder at lesser lights going out, and seeking to glimmer in the obscure darkness of homœopathy and other quackeries? So must it always be, when there is no principle to guide and no hypothesis to start from:—though they may be acquainted with everything that has been written or taught, they yet have no confidence therein, and ignore it all.

I cannot for a moment believe that the public would ever prefer the mere charlatan to the scientific physician. Whenever, therefore, true science shall be found to supply them with all that they require, the occupation of the quack will end. So long, however, as the former fails to do this, so long will the present unsatisfactory state of things continue. To the uncertainties of practice, and the differences among the legitimate practitioners of medicine, is to be ascribed the want of confidence felt in them by the community. As all denominations of medical practitioners are too bigoted—too prejudiced—to reform themselves, an inglorious division prevails throughout their various bodies. Like every other non-improving corporate body, however, they must be raised from their inactivity by the secular lever. The small end of the wedge must first be driven home by this power, through a certain amount of intelligence infused into the masses; and the great public itself must tell the profession at large, that they doubt the correctness of its principles, and are disposed to probe them through their own information. In fact, they do so now, by leaving the legitimate professors of the art, and going over to the charlatan and quack. Even this hint, however, is not taken:—it does not appear strong enough. These means are probably too courteous, carrying with them no galling element,—compelling no reflection on the past, no reform for the future.

This book, the author trusts, will lead to a more direct antagonism, and cause the public to present a more hostile front, and boldly ask the faculty on what principles they act, or whether they have any at all. The latter will then probably set their house in order, taking the initiative from their patients;—and the result will be, that they will seek for a principle, act upon it, become more unanimous among themselves, as they agree in doctrine, and in this union will offer the most proper opposition and antagonism to fraud and quackery. When this occurs,—not before,—the medical profession will rise in dignity and importance;—their opponents will shrink before them, and the public, then feeling a confidence they never had before, will support the high art of scientific medicine. It has, however, its stormy revolution before it:—but when this has once passed, with all its shifting sands of error, scientific Medicine will stand firm and immoveable on the rock of Truth.

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"Mankind, in the mass, are ever ready to look with favour upon any discovery or invention which can ameliorate their condition; but corporations are too apt to regard with dislike anything in the shape of innovation. The former desire the cure of their bodily ailments by the most simple means, while the 'faculty' still run in the beaten tracks of remedy and routine. Dr. Benjamin Ridge has evidently made the tongue a deep study. What he has done is to reduce the various appearances of this organ to a system. We invite attention to the theory here broached by Dr. Ridge, who has explained and utilised the simple provision by which Providence has made the tongue at once the silent register of complaints and the indicator of cure. Dr. Ridge, we understand, is about to publish a larger work for the family use of 'the million,' in which the home treatment of disease will be popularly set forth."

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"There is a growing feeling that the practice of medicine has too long been stationary; that the profession, partly from ignorance and partly from mistaken views of their own interest, have not made a progress either in the theory or practice of their art at all corresponding with the advance made in the other sciences.

"Dr. Benjamin Ridge, in his 'Glossology,' boldly dashes away the film of ignorance, and is an arch-enemy to 'circumlocution;' but the results of years of successful practice have strengthened his convictions as to the soundness of his theory. Dr. Ridge's discovery is that certain appearances on the tongue indicate certain derangements in the organs of the body; so that he comprehends immediately the cause of disease with marvellous accuracy. Dr. Ridge also adopts a well-defined general treatment, divisional and distinct, applicable to the multiform complaints to which flesh is heir, and sweeps away the rubbish of technicality and form which impedes him in his search for truth.

"We understand that a volume of 'Popular Prescriptions,' from the same author, the object of which is to give plain and simple directions for medical treatment at home, will shortly be forthcoming."

### MORNING HERALD.

"Have the various appearances of the tongue, as indications of disease, yet been made the basis of scientific treatment by the medical profession? The work before us first answers this question in the negative, and then proceeds to lay that basis. It furnishes a diagnosis of disease, based exclusively on the appearances of the tongue;—the organ which, according to the theory of the writer, never fails to indicate the seat and character of disease generally, and point to the proper remedies for its alleviation and cure. In other words, Dr. Ridge, from a survey of the tongue, proves that certain appearances on parts of it indicate the presence of certain diseases, and that those parts correspond with certain organs of the body.

"Dr. Ridge graduated in the old school of a profession pre-eminently wedded to routine, and jealous of innovation; but he had not been long in the practice of medicine before he found that, as a rule, medical men were more apt to confine themselves to the easy task of recording the *effects* of diseases than of diligently seeking the *causes.*

"Hence,—*Nulla sine causâ nota* is the animating principle of Dr. Ridge's researches. His theory is not less comprehensive than simple in design; and he has shown himself not less earnest in his desire than practical in the means he employs to reduce to system the laws which should govern the physician's art."

### GARDENER'S GAZETTE.

"If we are asked what gardeners have to do with books on medicine, we may inquire, in turn, what disease there is to which gardeners are not as subject as other men; and we also assume, without any great danger of erring, that they are quite as anxious as any other class to be cured when they are unhealthy. Besides, we are always curious to sift any novel doctrine to see if we can find anything worth knowing. The doctor, in this book, starts a new theory, and it is very rare to find support among those who practice on old systems. He asserts that the tongue is a true indicator of disease and of its locality. It has been the fashion among old practitioners to look at the tongue as a whole, whereas it is quite certain that it may be furred on one part and clean in another, showing very distinctly that viewing it as a whole is at least an uncertain, and may be a most erroneous, mode of using it as a test; but if the doctor is right, the tongue is a certain indicator of the seat and nature of a disease, if properly studied—that is to say, if the particular parts are attended to, it becomes a sort of index to the diseases of the body. It is a bold and novel doctrine, but so was Dr. Jenner's when he introduced vaccination; we cannot, therefore, allow the novelty to detract from its soundness."

### MAIR'S MONTHLY REGISTER.

"It is doubtless generally known that to make a faithful diagnosis of disease is very difficult, and any contribution, however small, which will aid the medical practitioner in more easily achieving so desirable a result, is a valuable boon. Dr. Ridge has endeavoured to benefit his profession by such means, and he has designated his discovery 'Glossology,' which word—perceptibly of Greek origin—is fully described in the title. The author, in diverging from a beaten track and promulgating a new doctrine, has taken a bold step, and although he will doubtless meet with opposition where he should have support, still we trust his suggestions will be practically tested by experienced and unprejudiced men. The importance of diagnosis is so great, that the discoverer of 'Glossology' would doubtless become one of the Hunters of his age, should his system be less valuable than we are led to suppose.

"The majority of our readers, perhaps, imagine that 'Glossology' is nothing new, as the faculty always look at the tongue. Dr. Ridge not only does this, but much more,—he divides that organ with mathematical precision into compartments, each of which has reference to some other vital organ, so that by the colour, covering, papillæ, or general appearance of the tongue, in any particular part, the seat of disease of a whole system may be at once detected.

"We can have no hesitation in stating our belief that Dr. Ridge's opinions are worthy of mature consideration."

### SOUTH LONDON JOURNAL.

"The general indications afforded by the tongue, it is true, have ever been considered by the medical profession as no slight help to diagnosis; but until Dr. Ridge (of Bruton-street), the author of the *brochure* whose title stands at the head of our notice, published the results of his investigations into this important department of *semeiotics*, this organ was looked upon as sympathising almost solely with the alimentary canal, and as having but little or no connexion with other portions of the body. The condition of the tongue as to dryness and moisture, its furred appearances, its colour, and sometimes its temperature, most practitioners have been, and still are, in the habit of noticing, with greater or less exactness; but Dr. Ridge is unquestionably the only observer who has acquired any definite knowledge of the part played by this organ as an index to specific maladies. This able and enlightened physician may be said to have created for himself an entirely new means of recognising disease, so that by the simple inspection of the tongue and its characteristic divisions he arrives at a justness of diagnosis truly remarkable.

"These divisions appear to be remarkably characteristic, and the author distinctly affirms that they are borne out by the anatomy of the organ itself.

"In one part of this truly interesting, and we may add, original work, there are observations upon the laws of the fouling and cleansing of the tongue which vastly enhance the value of Dr. Ridge's discovery, and in no small degree contribute to place that discovery upon a scientific basis.

## OPINIONS OF THE PRESS.

"Anything more beautiful than this law can scarcely be conceived, and as developed by Dr. Ridge it appears to us to evidence the operation of no ordinary mind.

"That our author was in no haste to jump at conclusions is evident; for we find the first edition of his work was published in 1843, seven years after his great discovery was made. Fourteen years have elapsed since the appearance of the edition referred to and the one we are now noticing.

"There are those of the profession who, no doubt, from prejudice and a large amount of what we may fairly designate red-tapeism, will affect to despise the discovery of Dr. Ridge, no matter how indisputable may be the laws embodied in that discovery.

"We find genius enough, however, in the small volume before us to warrant us in saying that it inculcates principles as new as they are great and useful; and our earnest advice to the author is to try the public—the million—and not confine himself to addressing, as he has hitherto done, his own order exclusively. Let him make his views more popular, and our word for it he will reap his reward as a successful medical pioneer."

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